DOCUMENT RESUME

ED 023 777 24 UD 007 619

By -Hawkridge, David G.; And Others

A Study of Selected Exemplary Programs for the Education of Disadvantaged Children: Part II. Final Report.

American Inst. for Research in Behavioral Sciences, Palo Alto, Calif.

Spons Agency -Office of Education (DHEW), Washington, D.C. Bureau of Research.

Report No -AIR -752 -9/68 -FR

Bureau No -BR -8 -9013

Pub Date Sep 68

Contract -OEC -0 -8 -089013 -3515 (010)

Note -341p.

EDRS Price MF -$1.50 HC -$17.15

Descriptors - *Compensatory Education Programs, *Disadvantaged Youth, Elementary Grades, Mexican Americans, *National Surveys, Negro Students, Preschool Programs, Program Budgeting, *Program Descriptions, Program Design, *Program Evaluation, Puerto Ricans, Reading Instruction, School Personnel, Secondary Schools, Tables (Data), Test Results, Urban Schools

In Part II of this Final Report each of 21 successful compensatory education programs, preschool through grade 12, is described in enough detail to permit a school district to make a preliminary decision about the desirability of attempting a local replication. Most of the programs are inner-city projects for Negroes, Puerto Ricans, and Mexican-Americans. (For Part I of this report, see UD 007618) (Author)

BR 8-9013
PA-24
07619 E

AIR-752-9/68-FR

FINAL REPORT
Project No. 089013
Contract No. OEC-0-8-089013-3515 (010)

A STUDY OF SELECTED EXEMPLARY PROGRAMS FOR THE EDUCATION OF DISADVANTAGED CHILDREN

PART II

September 1968

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Office of Program Planning and Evaluation

ED023777
UD 007 619

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

AIR-752-9/68-FR

Final Report
Project No. 089013
Contract No. OEC-0-8-089013-3515 (010)

A STUDY OF SELECTED EXEMPLARY PROGRAMS FOR THE EDUCATION OF DISADVANTAGED CHILDREN

PART II

David G. Hawkridge
Albert B. Chalupsky
A. Oscar H. Roberts

American Institutes for Research
in the Behavioral Sciences

Palo Alto, California

September 1968

The research reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Office of Program Planning and Evaluation

UD 007 619

TABLE OF CONTENTS

PART II

Page

LIST OF TABLES iv

LIST OF DIAGRAMS viii

SUMMARY. 1

INTRODUCTION 3
    Explanation of the program descriptions 3

PROGRAM DESCRIPTIONS 7

    Preschool programs:
        The Preschool Program of Fresno, California 7
        The Infant Education Research Project in Washington, D. C. 20
        The Early Childhood Project of the Institute for Developmental Studies in New York City 40
        The Perry Preschool Project of Ypsilanti, Michigan 62
        The Diagnostically Based Curriculum in Bloomington, Indiana 78
        The Academic Preschool in Champaign, Illinois 112

    Elementary programs:
        The Homework Helper Program of New York City 133
        The Intensive Reading Instructional Teams of Hartford, Connecticut 150
        The After School Study Centers of New York City . . . 162
        The Self-Directive Dramatization Project of Joliet, Illinois 174
        The More Effective Schools Program in New York City 185
        Project Concern of Hartford, Connecticut 218
        The Elementary Reading Centers of Milwaukee 233
        The School and Home Program of Flint, Michigan 240
        The Programmed Tutorial Reading Project of Indianapolis, Indiana 252
        Teacher Expectation in South San Francisco 261
        The Speech and Language Development Program of Milwaukee 268
        The Communication Skills Center Project in Detroit . . 284

Page

Secondary programs:
The Homework Helper Program of New York City 133
The Communication Skills Center Project in Detroit . . 284
Junior High Summer Institutes in New York City 295
Project R-3 in San Jose, California 308
The College Bound Program of New York City 324

ERIC RESUME 332

LIST OF TABLES

Table	Page
1 Comparison of PPVT pretest and posttest means for each group in the Fresno Preschool Program, 1966-67	15
2 Comparison of PPVT pretest and posttest means for each group in the Fresno Preschool Program 1967-68	16
3 Mean IQ scores at intervals during Infant Education Project	37
4 Mean scores on various tests at 36 months, Infant Education Project	37
5 Mean Stanford-Binet IQ scores for experimental and control sub-samples in Wave 2 of the Early Childhood Program Fall 1963 and Spring 1964 (Prekindergarten)	55
6 Mean Columbia Mental Maturity Scale IQ scores for experimental and control sub-samples in Wave 1 of the Early Childhood Program, Winter 1963-63, Spring 1963 (Kindergarten), and Spring 1964 (Kindergarten)	56
7 Mean Columbia Mental Maturity Scale IQ scores for experimental and control sub-samples in Wave 2 of the Early Childhood Program, Fall 1963 and Spring 1964 (Prekindergarten) and Spring 1965 (Kindergarten)	57
8 Mean Stanford-Binet IQ scores for experimental, control, and supplementary control sub-samples in Waves 2 through 4 of the Early Childhood Program on pretest	58
9 Status of Waves 0 through 4 in the analysis of the Perry Preschool Program, through Spring 1967	74
10 Stanford-Binet, PPVT, and Leiter IQ scores for Waves 0 through 4 in the Perry Preschool Program, prekindergarten through third grade	75
11 California Achievement Test Battery scores for Waves 0 through 3 in the Perry Preschool Program, first through third grade	76

Table Page

12 Instruments of assessment, Diagnostically Based Curriculum Project 83

13 Test schedule for Studies I, II, and III, Diagnostically Based Curriculum Project 84

14 Weekly Diagnostic Rating Scale, Diagnostically Based Curriculum Project 87

15 Lesson Plan Rating Form, Diagnostically Based Curriculum Project 88

16 Auditory Discrimination Lesson Format, Diagnostically Based Curriculum Project 99

17 Stanford-Binet IQ scores for Studies I, II, and III combined, Diagnostically Based Curriculum Project 105

18 CMMS IQ scores for Studies I, II, and III combined, Diagnostically Based Curriculum Project 106

19 Language age data on the Illinois Test of Psycholinguistic Abilities for Studies I and II combined, Diagnostically Based Curriculum Project 107

20 Subtest data on the Illinois Test of Psycho-linguistic Abilities for Studies I and III combined, Diagnostically Based Curriculum Project 107

21 PPVT scores for Studies I, II, and III combined, Diagnostically Based Curriculum Project 108

22 Lincoln-Oseretsky Motor Development Scale data for Studies II and III combined, Diagnostically Based Curriculum Project 109

23 Achievement of Academic Preschool pupils after 2 years of instruction 130

24 Gains in reading age for three samples of pupils in the Homework Helper Program 144

25 Gains in average reading age for two samples of tutors in the Homework Helper Program 146

Table Page

26 Summary of California Reading Achievement Test gains during 3 years of IRIT 154

27 Mean grade-equivalent scores of IRIT students following 7 months of classroom placement, Spring 1967 157

28 Average reading gains in grade-equivalents for fourth-grade ASSC pupils and controls, April 1964 through April 1965 169

29 Average reading gains in grade-equivalents for ASSC pupils in grades two to six, October 1966 through April 1967 169

30 Median reading ages for Old and New MES, October 1964, 1965, and 1966 (total grade group norms) 194

31 Median reading ages for New MES, May 1965 and May 1967 (total grade group norms) 194

32 Median reading grade scores for pupils in selected Old MES and control schools, October 1965 and May 1966 199

33 Median reading grade scores for pupils in selected New MES and control schools, October 1965 and May 1966 200

34 Comparison of grade norms and median grade scores on the Metropolitan reading comprehension initial and final tests for pupils with full and partial MES experience with pupils in control schools by grade - Old ME schools 205

35 First-semester reading gains for samples of pupils in the Reading Centers, Milwaukee 237

36 Mean gains in vocabulary for second-grade pupils in the School and Home Program, 1961-62 246

37 Mean gains in comprehension for second-grade pupils in the School and Home Program, 1961-62 247

38 Mean gains in vocabulary for fifth-grade pupils in the School and Home Program, 1961-62 247

39 Mean gains in comprehension for fifth-grade pupils in the School and Home Program, 1961-62 248

Table Page

40 Mean gains in combined vocabulary and comprehension for second-grade pupils in the School and Home Program, 1961-62 . . 248

41 Mean gains in combined vocabulary and comprehension for fifth-grade pupils in the School and Home Program, 1961-62 . . 249

42 Group mean scores for experimental (two-session Programmed Tutoring) and control group 258

43 Mean gains in total IQ scores after 1 year on TOGA for pupils in the Teacher Expectation and Pupils' Intellectual Development Study, May 1964 through May 1965 264

44 Mean scores on the Ammons Quick Test for four samples in the Speech and Language Program, January and May 1967 282

45 A typical weekly schedule for the Communication Skills Center, Detroit 287

46 Average gains for grades 4-6, 7-8, and senior high school, before and during the Communication Skills Center Program, 1966-67 291

47 Percentage distribution of children (N 479) by grade level in reading in the Junior High Summer Institutes Program 303

48 Percentage distribution of children (N 339) by grade level in mathematics in the Junior High Summer Institutes Program 304

49 Partial reproduction of the eighth-grade R-3 Program curricula (1967-68) 314

50 Some of the activities of an intensive involvement period in the R-3 Program, May 1968 318

51 Average reading grade-equivalents for eighth-grade pupils in the R-3 Program, Fall 1967 and Spring 1968 320

52 Average arithmetic grade-equivalents for eighth-grade pupils in the R-3 Program, Fall 1967 and Spring 1968 320

53 Grade-equivalent scores on the Stanford Achievement Test, 1967 summer session, College Bound Program 329

LIST OF DIAGRAMS

Diagram Page

1 Daily schedule for Academic Preschool Program 115

2 Stanford-Binet IQ scores for experimental and control groups in the Academic Preschool Program 129

3 Gains in average reading age for three samples of pupils in the Homework Helper Program 143

4 Adjusted gains in average reading age for two samples of tutors in the Homework Helper Program 147

5 Representative gains in reading age of samples of pupils in the IRIT Program, 1967-68 155

6 Gains in average reading grade equivalents of two samples of fourth-grade pupils before and during the After-School Study Centers Program, 1964-65 168

7 Gains in average reading grade equivalents of pupils in grades two to six at the After-School Study Centers, 1966-67 170

8 Old MES reading profiles, October 1964 and October 1966 195

9 New MES reading profiles, October 1965 and October 1966 196

10 Old MES reading profiles, May 1965 and May 1967 197

11 New MES reading profiles, May 1965 and May 1967 198

12 Old MES' and control schools' profiles, October 1965: reading comprehension 201

13 Old MES' and control schools' profiles, May 1966: reading comprehension 202

14 New MES' and control schools' profiles, October 1965: reading comprehension 203

15 New MES' and control schools' profiles, May 1966: reading comprehension 204

Diagram | Page

16 Profiles of groups of pupils with 3 years' Old MES, 2 years' Old MES, and no MES 207

17 Profiles of groups of pupils with 2 years' New MES and no MES experience, April 1967 208

18 Median reading gains for pupils starting in grades two and four in Old MES and control schools, October 1965 through April 1967 209

19 Median reading gains for pupils starting in grades three and five in Old MES and control schools, October 1965 through April 1967 210

20 Median gains for pupils starting in grades two and four in New MES and control schools, October 1965 through April 1967 211

21 Median gains for pupils starting in grades three and five in New MES and control schools, October 1965 and April 1967 212

22 Testing and experimental schedule for the Teacher Expectation and Pupils' Intellectual Development Program . . 263

SUMMARY

The aims of this study were to identify, select, analyze, and describe educational programs for culturally disadvantaged children from preschool through grade 12 which had yielded measured benefits of cognitive achievement.

The written reports of over 1,000 compensatory educational programs were perused in a literature search carried out mainly through Educational Resources Information Centers (ERIC), libraries, and some 300 mail requests. With the assistance of a panel of national experts, a list was compiled of about 100 programs, selected not on the basis of geographical area, grade level, or type of treatment, but because each was believed to have enabled its pupils to make greater gains in measured cognitive achievement than they normally would have made had they not received the program. The list was restricted also by considering only programs reported between 1963 and 1968.

A schedule of site-visits was established and carried out, to include eventually 98 programs in 31 urban areas and 16 states. During the site-visits, structured interviews were held to obtain all data necessary to decide whether the program under study had indeed provided measured benefits of cognitive achievement, and if it had, to compile a complete description and to conduct an analysis of the components of the successful programs.

The site-visits were conducted by five senior staff of the American Institutes for Research, with assistance from other staff on two occasions. The routine for the visits was evolved through a careful pattern of training and adaptation, and normally involved discussions with one or more senior persons in each program, as well as some of their subordinates. Visits were followed up by mail and telephone where necessary.

Site-data were analyzed in the Palo Alto offices of the American Institutes for Research, and final decisions were made about the inclusion of each program visited in the set of descriptions which forms Part II of the Final Report. No study was accepted for description unless data available indicated that pupils in the program had achieved statistically significantly better scores on standardized tests than had controls, or than national normative figures.

In the analysis of site-data it became evident that few if any compensatory education programs are free from blemishes of sampling, design, testing, data recording, or interpretation. Many apparently

Part II of this Final Report comprises the descriptions of 21 programs which met the study's criteria. Each description was written according to a specially developed format, to provide a concise yet readable account of the nature, operation, and results of each program for principals, superintendents, and other interested persons. The U. S. Office of Education, sponsors of the study, requested that the descriptions be written so that enough detail was offered for a preliminary decision to be made in a school district about the desirability of attempting a locally modified replication. The descriptions include six referring to preschool programs; twelve, to elementary pupils, and five at the high school level. They range from small-scale experiments for less than 100 children to major programs involving many thousands. Some operate during school hours, others after school. Most are inner-city projects for Negroes or Spanish-speaking Americans, but some serve Appalachian white and other minority groups. The preschool programs claim improvements in intelligence ratings, generally speaking, while the others show benefits in terms of reading grade-equivalents. Each is unique in the treatment it provided.

Part I of this Final Report, although much more technical, is an intrinsic part of the study and should not be neglected. Apart from providing background to the study, and an account of its limits, it contains full details of the methods or procedures followed and of problems encountered. The typical characteristics of the programs described are discussed, followed by a tentative analysis of the programs' components. The question of apparently well designed programs which yield unimportant or no measured benefits of cognitive achievement is explored. Guidelines for program design and evaluation are proposed. A closing section deals with possible approaches to cost-effectiveness analysis for compensatory education programs. A list of references is followed by two extensive bibliographies, one providing general sources on the culturally disadvantaged, the other citing all materials collected during the study and relating to programs not described.

In the tentative analysis of programs described, several common components were identified, such as a pupil-to-adult ratio of no more than seven to one. It is possible that these are components critical to the success of programs in yielding measured benefits of cognitive achievement, but no firm conclusions could be drawn on this point, as the study did not include a comparison between common components of (successful) programs described and ones (not successful) studied but not described.

The guidelines offered for program design and evalution concentrate upon a detailed, comprehensive, and accurate approach using appropriate statistical tools.

The discussion of cost-effectiveness concludes that there needs to be a greater number of successful programs to choose among, as well as more comprehensive data on inputs and outputs.

INTRODUCTION

The chief product of this study has been the descriptions of selected educational programs for culturally disadvantaged children in America. Each of these programs has yielded measured benefits of cognitive achievement.

Although the descriptions have been written by several authors, a common format has been followed with only minor individual variations. Thus it is possible for a person wishing to know about the populations of a number of programs to turn to roughly the same paragraph, under the same general heading, in each description. Since not as much information is available about some programs as about others, not every feature of the descriptions appears in every description.

Explanation of the Program Descriptions

Most of the descriptions comprise nine main parts:

Introduction
Personnel
Methodology: General
Methodology: Specific Examples
Evaluation
Budget
Quoted Sources
Sources not Quoted
For More Information

Introduction: Here a quick overview of the program is provided. First, a brief description of the treatment is given, followed by details of the pupils served by the program. The historical development of the program is dealt with next, rather briefly, and the magnitude of the program is outlined. Finally the cognitive behaviors measured are listed together with a very short account of the main results of testing.

The introduction is intended only to indicate to the reader the salient features of the program, enabling him to judge whether he should read the more detailed description under the other headings.

Personnel: The personnel involved in a program are listed in categories. After the name of each category (e.g. educational aides) a few notes are usually given in parentheses concerning the qualifications or selection procedures for this category. Should these be fairly obvious, as in the case of guidance counsellors, secretaries, or school nurses, nothing will be mentioned. Then for each category the more important activities and duties are listed, although again nothing is entered for the more obvious cases.

Under this heading there may also be noted the time commitment of various categories of personnel, particularly if these people are sharing their time between several programs. Others only tangentially associated with the program being described, such as janitors, cooks, or the district director of research in some cities, are mentioned in a final paragraph rather than by category.

Methodology: General: The assumptions and objectives of the program are frequently included under this heading, particularly if they have been clearly laid down by the program director. A narrative outlining the treatment used in the program forms the core of this part, however, including all the major components in as comprehensive a manner as the available information has allowed. Not only the instructional methods used with the pupils, but also any training programs for teachers are discussed here. Every attempt has been made to provide here a framework of fact about what happens in the classroom, onto which the reader may attach the additional specific examples of the next part of the description.

Methodology: Specific Examples: Where specific examples of principal aspects of a program have been available, these are usually included under this heading, although some may be discussed under Methodology: General. The examples are selected from the available publications concerning the program, or in a few cases on the basis of personal observation of the program. They are selected to illustrate the content, methods, or effects of the program; consequently, they range from infants' songs to tutors' accounts. Materials found to be particularly useful in the program may be listed here or described.

Evaluation: If there is more than one evaluation report available on a program, from two sources for the same year or for several years, this part of the description will attempt to deal with each, showing both juxtapositions and trends. Hence this part ranges from a few paragraphs for some programs to many pages for others. The evaluation reports have been examined critically by the staff of this study, and many programs have not been included in this publication because either the reports or on-site inquiries showed that there were no measured benefits of cognitive achievement for one reason or another. Even for the programs described here there are warnings to the reader; these are contained chiefly in Part I, but in some of the descriptions specific comments and caveats have been written, as appropriate.

The measures of achievement used are described first, for each area tested. Intelligence tests are included under this heading because, in the opinion of the research staff of this study, they measure achievement rather than innate ability in the context of these programs. The test results are summarized (not presented in full), usually in tables. Wherever possible the results are presented simply, although the level of confidence (p value) for the differences (gains) may be cited. The p value indicates whether or not the differences shown in the results are statistically significant. The term "significant" or "statistically significant" occurs quite frequently. For the layman, a p value of .05 (5 percent) or less means that there very probably was a difference between the scores obtained. A p value of less than .01 (1 percent) means that the difference is almost certainly a real one.

If the data are suitable, graphs are drawn to show the relative status of pupils at the start and end of phases of the program. These graphs are more fully explained in Part I, but a glance at one of them shows that they plot actual or nominal grade level (the grade the pupil is in) against achieved grade level as measured by tests. The national norm represents pupils who are achieving at the same level as the grade they are in. The disadvantaged norm is a hypothetical one devised for this study and based on many estimates of pupil performance in disadvantaged areas. It shows the disadvantaged pupil as achieving at about two-thirds of his nominal grade level. Programs yielding benefits must produce an upward slope on the graph towards the national norm and away from the disadvantaged norm if those gains are to be thought to be educationally significant.

Next under this heading other evaluation indices are discussed, usually briefly. The studies undertaken are outlined, and the results summarized, to give a fuller picture of evaluation. Should non-cognitive achievement, such as improvement of the self-image of pupils, have been the major objective of the program, this has been mentioned. This portion is not intended to be exhaustive.

The final product of the evaluation(s) is usually modifications and suggestions for changing the program. These are discussed last under the Evaluation heading. Where possible the reasons for the changes are included. From this portion it should be possible to judge what changes might be made (were it adopted elsewhere) to improve the program still further.

Budget: This heading is not intended to provide for a detailed account of all the expenditures associated with a program. Such figures are rarely obtainable. Rather it is a description of what components a planner would have to take into consideration in replicating the program, together with whatever rough estimates of per pupil costs or of global costs the researchers have been able to secure. It may include typical staffing patterns required, types of materials essential to the program, details of space to be provided in schools, cost-trends over several years, and other relevant items of this nature.

Quoted Sources: Here are listed the reports actually quoted in the description.

Sources not Quoted: Other publications or documents known to the researchers which give further details of the program described are listed under this heading.

For More Information: One or more names and addresses are given for people closely associated with the program described or its evaluation. These were correct in August 1968.

It should be clearly understood that time and financial limitations rendered this study incomplete in certain ways. It did not prove feasible to visit every city of the United States where programs of promise are in operation. Hence the list of descriptions given here may well omit significant programs worthy of description in further studies at some future date.

THE PRESCHOOL PROGRAM OF FRESNO, CALIFORNIA

Introduction

This program emphasized language development, through the use of small discussion-and-activity groups including not more than five children to one adult. Teacher aides and parent volunteers made this low child-adult ratio possible.

The children were 3 to 5 years of age, mostly Mexican-American, Spanish-speaking. Approximately two-thirds of them were from families receiving welfare; the remaining students were chosen on the basis of the family's economic need and English-language deprivation.

This was an academic-year program which began in 1964-65 with a pilot study involving approximately 45 students. It grew through succeeding years and by 1967-68 included 750 students in 50 classes at 19 elementary school sites.

Achievement gains in vocabulary proficiency were measured by the Peabody Picture Vocabulary Test.

Personnel

A. Program Coordinator.

The program coordinator assumed general administrative responsibility for all aspects of the program.

B. Resource Teachers. (Two in number, one full-time, one half-time.)

> They assisted the coordinator in all phases of the preschool program; assisted the teachers in planning for parent participation in the preschool program and for parent education meetings. They helped to provide in-service training for teachers by planning and writing newsletters, bulletins, and study guides listing seasonal or relevant program ideas, suggestions, and activities; provided assistance in the classroom to teachers who requested help (Gillen, et al., 1966).

C. Teachers. (Fifty in number, half-time, one per preschool class. Certified, most with an elementary or kindergarten credential. Others certified with a secondary home economics credential, since requirements for this credential included considerable study of child development. Some others had "special children's centers permits," which were issued to personnel with bachelor's degrees in other fields. Of the 50 teachers in 1967-68, five were Negro and one Mexican-American; effort was being made to recruit more teachers from the latter group.)

They assumed responsibility for the instruction of one class, with the assistance of the teacher aide and parent volunteers; they conducted a parent meeting every second week.

D. Teacher Aides. (Fifty in number; one per class; non-certified; facility in the Spanish language. Some parents became teacher aides after experience as volunteers in the instructional program.)

The teacher aides assisted the teacher with classroom instruction; they took her place when she had to confer with visitors, parents, or nurse. They assisted her with home calls and parent meetings.

E. Nurses. (Three full-time; two part-time.)

The nurses appraised hearing, vision, dental condition, and health problems of the children; they attempted to secure remediation and treatment through the support of the family, and welfare-and-community agencies. They maintained health records, and assisted with the health education of parents and children in the classroom and at parent meetings.

F. Secretaries. (Two in number; full-time. Located at the office of the coordinator.)

The secretaries prepared cumulative records on all children. They typed such things as invoices, forms, and instructional materials.

In addition, other school personnel had part-time or auxiliary responsibility for the project. The preschool classrooms were located on elementary school sites in the target area, and became an administrative part of each school. Thus, the school principal had the usual administrative responsibilities for the preschool on his campus, and his secretarial, custodial, and cafeteria staff were similarly responsible for such things as preschool student records, plant maintenance, and provision of milk. The department of preschool education was completely responsible for the curriculum, however. (Additionally, the district director of compensatory education had administrative responsibilities for this as well as for other compensatory projects, as did the district evaluation specialist.)

Methodology: General

The emphasis of the program was upon verbal communication and vocabulary development with each child spending most of his class time in a small discussion-and-activity group that included one adult and a few children. In this way, the child could verbalize naturally and frequently in a conversation, rather than having to raise his hand and await his infrequent opportunity to respond to the questions of the teacher. A favorable child-adult ratio was possible since there were not more than 15 children per class, along with one teacher, one teacher aide, and at least one parent volunteer.

Activities included experiences in: language (fingerplays, telephones); music (singing, rhythmic and interpretive physical reactions such as marching, being bears, being trees in the wind); arts and crafts (fingerpainting, clay); science (living things, magnets); health and safety (rest, nutrition, toileting, cleanliness); games and educational toys (puzzles, tinkertoys). The California climate also permits major emphasis upon the outdoors as a classroom, and the curriculum includes walks and bus trips.

Each class met 3 hours per day, 5 days per week, for the academic year. Classes were conducted in 27 portable classrooms set up at 19 elementary school sites. Two classes per day met in each room, one group from 8:30 to 11:30 and the other from 12:30 to 3:30. Each teacher and aide worked with one class only.

As vacancies occurred in a class, they were filled from a waiting list. Some children remained in the program for 2 years, some for one; all remained until ready for kindergarten.

Parent involvement was considered an important component of the program. In the classroom, the parent was encouraged and allowed to play a full instructional role with the discussion-activity group of which she had charge -- she was not merely treated as a "helper." The program coordinator described parent activity during the 1966-67 school year as follows (Forrester, 1967, pp. 9-10):

> ### PARENT PARTICIPATION IN THE PRESCHOOL PROGRAM 1966-67
>
> During the 1966-67 school year, we encouraged the parents of enrolled children to participate in the preschool program as much as possible. The goal towards which we worked was to have a parent or other responsible adult from each child's home participate one day a week at school; attend parent meetings (two per month); and join the class for study trips.

We planned with the parents for the staffing of the preschool classes and tried to help find solutions for baby-sitting problems and transportation needs. Our Spanish-speaking aides were often helpful in explaining school procedure and helping Mexican-American parents feel comfortable.

We planned with the parents the ways in which they would work at school. They did many things that needed to be done and many other things that they wanted to do. Parents mixed paint, served food, read stories, turned jump ropes, rocked children, rubbed backs at rest time, saw that children did a good job of hand washing, made piñatas, dried tears, answered questions, repaired equipment, brought animals to school, and generally contributed much to the children's program.

We tried to keep those parents who were unable to attend children's classes or parent meetings informed of what was going on through bulletins, letters, phone calls, and home calls.

We talked to the parents to find the best time to schedule parent meetings. Some teachers had a set meeting time during the month, others called meetings at varying times. Meetings were held during the day; at night; after study trips; after a birthday celebration or after a specially planned lunch, potluck or even breakfast. In some instances volunteers helped care for children during parent meetings.

Children helped prepare for parent meetings by making invitations, tape recordings of class activities, or a simple dessert!

The teachers tried to find and follow the needs and interests of each particular group in planning for the meetings.

Parent meetings were held in each preschool center at least twice per month during the 1967-68 school year.

Included among the topics for one month were: "philosophy and aims of preschool"; "values we want our children to hold"; "discipline"; "staffing and study trip plans"; "adult-education class offsprings"; topics on nutrition and immunizations; and participation in craft projects, sewing, and attendance at a PTA meeting. Book and film discussions were the vehicle for some topics.

Another instrument of parent involvement was the parents' advisory committee, which met once per month. This committee made recommendations which were acted upon by the preschool staff. For instance: that a handbook for parents be published (this was done); that a preschool-kindergarten articulation program be started (this was begun).

Study trips were considered to be an important part of the curriculum. Each class took five bus trips per year, in addition to many walking trips and outings via parent car pool. In addition, parents were occasionally taken on a bus trip first, to become familiar with the place being visited. A subsequent bus trip was for children and parents together, so that parents might serve as guides and instructors for their children. Parents often followed up this trip with a family outing to the site. For many parents, the study trips constituted the first visit to the study site. For instance, of 18 parents visiting a local museum, only one had been there previously.

During the 1967-68 school year, study trips exclusively for adult family members were made to the Art Center, the Museum, a dam, a dairy, and a rug mill. As a follow-up, a leaflet was prepared listing places to visit and things to see and do around the city.

Many volunteers have given freely of their time and talent to the preschool programs. The Fresno Volunteer Bureau and other community groups have recruited volunteers for the program. A total of 32 volunteers contributed their time and services during the 1967-68 year.

A monthly staff meeting was conducted. Sample topics included "concept and vocabulary development," "psychological services for preschool children," "music for young children." These sessions were often conducted by outside experts. Depending upon the topic, some meetings were for the teachers, while others might be for the entire preschool staff. Also, a monthly staff bulletin was issued, with contributions from teachers, notices of meetings, trips, and other current news.

Through the 1967-68 school year, 29 inservice and/or organizational meetings were held for preschool teachers and aides. Seven of these meetings were for teachers only, three were for aides only, and the remaining 19 meetings were held for teachers and aides together. In order to make communication easier and to adapt schedules to the needs of the teachers and aides, four small daytime meetings were often held on one topic, rather than calling an evening meeting for one hundred people. Invitations were extended to preschool and Head Start personnel of outlying areas not attached to the Fresno City Unified School District for those meetings which were not organizational in content.

Because it was felt that greater articulation was needed between preschool and kindergarten, an articulation pilot program was begun at one of the school sites in 1966-67. In this program, mothers of kindergarten children continued to assist in classroom instruction, as they had done the previous year in preschool, and preschool staff introduced the kindergarten teachers to the methods and philosophy of the preschool.

Methodology: Specific Examples

Program activities were designed: 1) to develop a functional English vocabulary by presenting new words in the context of the students' activities; 2) to encourage the child to vocalize freely in English; 3) to introduce the child to standard sentence structure through example; 4) to stress listening and speaking skills; 5) to emphasize articulation by example rather than correction. To these ends:

A. Children played classification games, such as sorting pictures of animals into groups such as farm animals, pets, zoo animals.

B. The children sang songs or recited poems chosen specifically to help them produce sounds from the standard English repertoire. Fingerplays, in which the children gestured to illustrate the song-poem, were the vehicle used to encourage participation.

Teachers used a list of "English Sounds for Which There is No Equivalent in Spanish," along with a list of 58 fingerplays appropriate for each sound. Following are some of the sounds and fingerplays, the numbers after each sound refer to the appropriate fingerplays [Fresno Unified School District, 1966 (?)].

i him, this, his.

> This sound has no equivalent in Spanish. There will be a tendency to pronounce these words as heem, thees, hees.
> 18-20 and 22, 24, 25.

j jump, judge.

> This sound has no counterpart in Spanish and must be taught. J is sometimes substituted for y in such words as yes, yellow.
> 21-25.

ng Children who speak Spanish tend to make the sound of ng with an added k or g sound following the blend as - singging, singger.
26-27.

18. Tippy tippy tiptoe,
Here we go,
Tippy tippy tiptoe,
to and fro.
Tippy tippy tiptoe
Through the house.
Tippy tippy tiptoe,
Quiet as a mouse.

19. Little brown rabbit went hippity hop,
Into the garden without any stop.
Hippity, hop, hippity hop
He ate for his supper a fresh carrot top
Hippity hop, hippity hop
Then home went the rabbit without any stop.
Hippity hop, hippity hop.

20. This little frog broke his toe,
This little frog said, Oh, Oh!
This little frog laughed and was glad
This little frog was very sad
This little frog did just what he should:
He ran for the doctor as fast as he could.

21. Jack be nimble, Jack be quick
Jack jump over the candlestick.

22. Two little blackbirds
Sitting on a hill
One named Jack
The other named Jill
Fly away Jack, Fly away Jill
Come back Jack, Come back Jill

23. Five little Jack-o-lanterns sitting on a gate
The first one said, "Oh, my, it's getting late".
The second one said "There are witches in the air".
The third one said, "Oh, I don't care"
The fourth one said, It's just Halloween fun".
The fifth one said, "Come on. let's run".
"Whoooooooo" said the wind
And out went the light.
Away ran these Jack-o-laterns on Halloween night.

24. Jack and Jill (traditional)

25. Jack-in-the-box sits so still
Will he come out?
Oh, yes, he will!

26. The little mice are creeping, creeping, creeping,
The little mice are nibbling, nibbling, nibbling,
The little mice are sleeping, sleeping, sleeping.
The old grey cat comes creeping, creeping, creeping
Scamper, Scamper, Scamper!

27. Merry bells are ringing
Boys and girls are singing
Candle lights are glowing
Winter winds are blowing
Fairies are a-dancing
Reindeer are a-prancing
Christmas trees are gleaming
Silver stars are beaming
It's Christmas!

C. During one of the walking trips the children visited a garden and observed and discussed the various types of plants growing there. They later grew their own tulips at school and measured and charted their growth by drawings. The vocabulary words taught from these combined activities included: digging, watering, twigs, sprouts, buds, leaves, bulbs, roots, earth.

Evaluation

A. Measures of Achievement

A statistical report was not available on the 1964-1965 preschool pilot project. It was noted in the narrative report for that year, however, that the children "were evaluated over a period of one year and a half," and that on the Peabody Picture Vocabulary Test "nearly every child raised his IQ by 10 to 20 points". (Fresno City Unified School District, 1965, p.21).

In 1965-66 the Peabody was used again on a pretest - posttest basis. However, the program was of very short duration, beginning January 31 in some schools and March 28 in others. It was hypothesized in the 1965-1966 evaluation report that the brevity of the program, coupled with the fact that teachers did not have previous nursery experience, accounted in large part for the negligible gains reported.

Only the gain for one school was reported as being statistically significant (Fresno City Unified School District, 1966).

Again during the 1966-67 year the Peabody Picture Vocabulary Test (PPVT) was administered in a pretest - posttest design. Because of lack of test materials the pretest (Form A) was not administered until December while Form B was administered at the end of May. A bivariate analysis of 428 pupils who took both tests was done. The three ethnic groups, Caucasian, Mexican-American, and Negro were treated separately to determine whether there was a difference between ethnic groups as they entered preschools and whether there was a difference between groups as to benefit from the program. An analysis of variance was made of the pretest means of the three groups and also of the posttest means. A "t" test of significance of difference between correlated means was computed for each group to test the significance of each ethnic group's gain.

The results of the analysis are presented below.

Table 1

COMPARISON OF PPVT PRETEST AND POSTTEST MEANS FOR EACH GROUP IN THE FRESNO PRESCHOOL PROGRAM, 1966-67

	Total	Caucasian	Mexican-American	Negro	F
Pretest Mean	84.3	94.9	82.1	80.0	6.80*
Posttest Mean	96.5	98.9	94.3	98.1	1.78
"t"	7.24*	2.10*	8.16*	7.80*	

* Difference significant at .05 level.

[Adapted from Table I, page 61, Fresno City Unified School District (1967)]

As noted, the total sample and all three separate groups made statistically significant gains. The means of the three ethnic groups differed significantly from one another on the pretest measure, but there was no statistically significant difference between the three means on the posttest measure.

It was concluded from these data that the three ethnic groups involved in this program came to the program with differing verbal ability and/or vocabulary as measured by the PPVT. This difference may be due to differing backgrounds of verbal experience or perhaps some other variable. This difference was gone by the end of the treatment period, again as measured by the PPVT. It is important to note that while the differences between the group means disappeared, it was not due to gain on the part of a low group or groups while the higher group or groups showed no gain: all groups showed significant gain, but the gains were such as to equalize verbal ability as measured by the PPVT.

For the 1967-68 school year the PPVT Form A was administered as a pretest in September and as a posttest in May. Only the children who took both tests were considered in the analysis. A test of the significance of gain was computed for each class and for each major ethnic group in the program. An analysis of variance was computed to determine whether the major participating ethnic groups differed from one another on the pretest and/or posttest.

Of the 47 classes considered, 38 gained significantly in intelligence as measured by the PPVT. Also, as shown below, each major ethnic group gained significantly.

Table 2

COMPARISON OF PPVT PRETEST AND POSTTEST MEANS FOR EACH GROUP IN THE FRESNO PRESCHOOL PROGRAM 1967-68

Ethnic Group	N	Pretest Mean	Pretest S.D.	Posttest Mean	Posttest S.D.	r	Diff.	t
Mexican-American	198	83.7	15.32	98.8	13.42	.62	+15.1	16.62*
Negro	165	85.4	14.98	101.0	12.41	.62	+15.6	16.44*
All Others	89	94.3	17.8	106.3	14.89	.72	+12.0	8.95*

* Significant at .05 level.

[Adapted from Table III, page 109, Fresno City Unified School District, (1968)]

The analysis of variance revealed significant differences between ethnic groups on both pretests and posttests.

The conclusion stated in the 1967-68 evaluation report was as follows (Fresno City Unified School District, 1968, p. 107):

> As evidenced by the PPVT, this program has been successful in increasing the intelligence of preschool children as measured by the PPVT. Whether or not this gain is lasting, or will result in better performance and learning in the primary grades, has yet to be demonstrated. This question, as to the longitudinal benefits of this program, is being explored.

B. Other Evaluation Indices

In 1966-67, teachers and social case workers were asked to respond to opinionnaires concerning the program and its effect upon children and parents. Ratings were quite positive. Also, the parents' advisory committee strongly recommended extension of the program to more children. An increased sense of community was noted, as evidenced by a San Francisco excursion and a Mexican-American fair, both arranged by and at the initiative of the parents. During the 1967-68 school year, parents of the preschool children became interested in furthering their own education. All mothers whose children were enrolled in the preschool classes at one location attended an adult school sponsored jointly by the County Welfare Department and the Fresno Adult School. As a result of becoming involved in the preschool programs, many parents and aides served as officers and committee members on the school's PTA boards.

C. Modifications

The staff has expressed a felt need for a greater articulation of the preschool and kindergarten programs, if the latter is to capitalize adequately on the gains achieved in preschool. As a result of meetings and a questionnaire survey conducted during the 1967-68 school year, the children in the 1968-69 school year will be grouped in kindergarten classes in order to follow preschool and Head Start children through the kindergarten year. No one class will be made up entirely of preschool or Head Start children, nor will these children be "scattered" through every kindergarten class in the school. By identifying and grouping the children, an enriched instructional program of inservice education can be provided for teachers and aides. As a result of early identification and grouping of children for instructional purposes, a design for continuous evaluation can be set up. Principals, preschool and kindergarten teachers, parents and others will meet regularly to exchange ideas and information in order to provide the necessary continuity for children and programs.

Budget for 1967-68 School Year

	Program Coordinator	Full-time
2	Resource Teachers	1 full-time 1 half-time
50	Teachers (one per class	Half-time
50	Teacher Aides (one per class)	Half-time
5	Nurses	3 full, 2 part-time
2	Secretaries	
27	Portable buildings	1 per 2 classes
	Custodial service	1 hr/day/building

Materials cost = $125/class, then $75 ($125 in year 1, $75 in subsequent years). $480,000 for 750 children was total cost of program for 1967-68.

Quoted Sources

Forrester, F. *Annual report for preschool compensatory education projects: Unruh A.B. 1331 Elementary and Secondary Education Act, Title I*. Fresno, California: Fresno City Unified School District, 1967.

Fresno City Unified School District. *Pilot project in compensatory education*. Fresno, California: The District, 1965.

Fresno City Unified School District. *Descriptions of Fingerplays*. Fresno, California: The District, 1966 (?) Unpublished.

Fresno City Unified School District. *Evaluation of the comprehensive education program instituted under the provisions of Title I "Elementary and Secondary Education Act of 1965", Public Law 89-10 for the 1965-66 school year*. Fresno, California: The District, 1966.

Fresno City Unified School District. *Evaluation of the comprehensive compensatory education program instituted under the provisions of Title I "Elementary and Secondary Education Act of 1965", Public Law 89-10 for the 1966-67 school year*. Fresno, California: The District, 1967.

Fresno City Unified School District. *Evaluation of the comprehensive compensatory education program instituted under the provisions of Title I "Elementary and Secondary Education Act of 1965", Public Law 89-10 for the 1967-68 school year*. Fresno, California: The District, 1968.

Gillen, W., Nielsen, H., Swords, R., Jones, S. M., Stewart, J., Pratt, A., Forrester, F., Mallory, N., and Carlson, A. A guide for preschools. Fresno, California: Fresno City Unified School District, 1966.

For More Information

Mrs. Frances Forrester, Coordinator
Preschool Program
305 E. Belgravia Avenue
Fresno, California 93706

Mr. Arthur Carlson
Director of Compensatory Education
Fresno City Unified School District
2348 Mariposa Street
Fresno, California 93721
(209) 268-4331

Mr. Gordon Graves
Program Evaluator
Fresno City Unified School District
2348 Mariposa Street
Fresno, California 93721

THE INFANT EDUCATION RESEARCH PROJECT IN WASHINGTON, D.C.

Introduction

Tutors provided intellectual and verbal stimulation to children, from the time the children were age 15 months until they were age 36 months. Instruction was on a one tutor:one child basis, 1 hour per day, 5 days per week, in the child's home.

The children were Negro males. They were drawn from homes that met two of the following three criteria: 1) the mother's formal education was less than 12 years; 2) the mother's work history was of unskilled or semi-skilled employment; and 3) the family income was $5000 or less. Fathers were absent in many of the homes; the families were of lower socio-economic status. All lived in deteriorated areas of Washington, D.C. An attempt was made to choose the participants from relatively stable homes, not so noisy or overcrowded as to interfere with the home tutoring sessions which were central to the project. Children were not selected if they displayed serious sensory or neurological problems.

The training of tutors and selection of children began in September 1965 and tutoring began 2 to 3 months later. There were 28 children in the experimental group and 30 in a control group. Follow-up evaluation continues.

Various tests of intelligence were used. The effectiveness of the program was indicated by the increasing superiority of experimentals over controls at intervals in the program.

Personnel

A. Project Director. (Approximately one-half time, divided into one-quarter time on research and one-quarter time on administration of the instructional program *per se*.)

The Project Director assumed overall responsibility for the project, participated in recruiting personnel, selecting the sample, and planning of data collection and analysis. He secured the cooperation of community agencies, conferred with the supervisor regarding day-to-day operation, and established policy.

B. Project Supervisor. (Full-time.)

The Project Supervisor conducted the day-to-day operation of the project under supervision of the director. He recruited the sample and the tutors, conferred with families to assure their ongoing cooperation, and scheduled the testing sessions and arranged the transportation in order to get the subjects to them.

C. Educational Supervisor. (Full-time. Master's degree in speech and previous nursery-school teaching experience.)

He planned the basic curriculum and instruction, purchased instructional materials, supervised tutors and organized a weekly group session with them.

D. Tutors. (Eight in number, full-time. Female; college degree; previous experience with inner-city children in such capacities as teaching or nursing. Approximately half were Negro.)

E. Secretary. (Full-time.)

Dr. Earl S. Schaefer, the project officer from the National Institute of Mental Health, was also a key figure in the development and continuing program.

Also, there were three part-time test administrators, whose duties were related to the research and evaluation, rather than the instructional component of the program.

Methodology: General

The instructional program was based upon certain rationale, summarized as follows:

> Studies of intellectual development have found no differences in mean mental test scores of infants from different social classes and from different races up to 15 to 18 months, but by the age of 3 years large differences between groups have emerged. A number of studies show that measures of intellectual level are highly correlated with verbal abilities as measured by tests of vocabulary and information, and that culturally-deprived groups and bilingual groups are more retarded on these verbal tests than on nonverbal tests of intellectual ability. Studies of lower socio-economic status groups have shown that such children receive less verbal stimulation from parents through mealtime conversation,

> reading, and other shared experiences than middle-class groups and that the parents present less adequate models for language learning. These studies suggest the hypothesis that culturally-deprived children develop progressively greater deficits in intellectual functioning during the period from 15 months to 3 years - the period of early verbal development, because of lack of adequate intellectual, particularly verbal, stimulation.

The initiative of the tutor and the one-to-one tutor-pupil relationship were considered to be the cornerstones of the project. The curriculum sequence was to a large degree evolutionary, rather than pre-specified. The tutor tailored the training to each child in cooperation with the educational supervisor and with one other tutor who shared responsibility for the child.

The training of the tutors began with the initial period of 2 to 3 months before the tutoring began. During this period approximately half-time was devoted to training activities. There were lectures by the project officer, other senior project personnel, and university professors from appropriate disciplines. Three needs of culturally disadvantaged infants were emphasized: 1) need for positive relationships with other persons; 2) need for varied stimulation; 3) need for verbal development. The training period was meant to encourage certain attitudes and behaviors of the tutor, such as acceptance of the child's interests, praising of his achievements, maintaining with the child an attitude of enthusiastic exploration, and giving him the sorts of experiences that infants from the higher social classes usually enjoy. Tutors also visited children's institutions, and each had a pilot case for 2 weeks, to gain experience in tutoring and in dealing with the family.

The tutor then began the program of home visitation. Each child was tutored in the home for 1 hour a day, 5 days per week, from the time the child was 15 months old until he was 36 months old. Main emphasis was upon verbal development and concomitant concept formation. The tutor talked with the child, showed him pictures, taught new words, played games, read from books, assisted in coloring of pictures and construction of simple jigsaw puzzles, etc. Lesson plans were not rigid; emphasis was upon a flexible, spontaneous, and pleasant interaction between tutor and child.

The early sessions were devoted primarily to diagnosing the needs of the children and to discovering what items stimulated them. A wide variety of toys were used as stimuli, including blocks, wooden animals, and nesting boxes, as well as various items around the home. Subsequent sessions were devoted to meaningful verbal exchange between tutor and child. Objects were named casually but often. The children were led gradually from the familiar to the novel; as they matured they became interested in being read to from books, looking at pictures therein, and taking walks about the neighborhood.

Participation of the mother and of other family members in the education of the infant was encouraged but not required. Frequently, the mother spontaneously joined the activity and asked the tutor's advice as to how she could continue the activity with the child and his siblings. Books and materials were left in the home by the tutor for this purpose.

The typical daily schedule of a tutor began with a half-hour to 1-hour conference with the educational supervisor or the cooperating tutor. Then there were two tutorial sessions in the morning and two again in the afternoon, followed by completion of progress notes on the children. Each tutor worked on alternate weeks with two different groups of four children. In this way, each child came to know two different tutors, rather than just one. Thus, if a tutor had for any reason been replaced during the program, the children affected would have some continuity from the remaining tutor.

The average tutoring time per child was 340 hours, or 16 hours per month for the 21 months of the program.

Each child was served continuously through the course of the project, even though some families moved several times, during this period.

Each mother was paid $1 per tutoring session and $10 each time she brought her child to one of several test administrations.

Tutors met with the educational supervisor in a weekly 2-hour group session. The function of these sessions was stated as follows:

> Primary emphasis will be upon group discussion of their experiences during the week, of problems they encountered, of methods and materials that proved useful, and of the developmental progress of the children. These sessions will also provide an opportunity to give further training to the tutors, to determine whether they are carrying out the program as planned, and to

> distribute materials and books. One of the major goals will be to develop and maintain the interest and enthusiasm of the tutors by allowing them to share their experiences in a meaningful group.

At some of these weekly sessions the educational supervisor presented a general training program, while other sessions involved a specific case history on a particular child.

Methodology: Specific Examples

The tutors wrote up a number of activities which they tried during the course of the experiment, and which they felt were successful. Some of these are described or quoted here, along with the name of the tutor contributing each.

> A. A number of objects, with which the child has become familiar, are placed in paper bags. These might include toy cars and animals, pencils, buttons, brushes, etc. A game is played, in which the child must reach into the bag, handle the objects, and name them sight unseen. The child is allowed to remove and play with those objects he can name. The tutor guides him or provides hints to enable him to name the remaining objects (Lucille Banks).
>
> B. Since the most frequently stated aim of the project has been to stimulate verbal development, I have concentrated on singing in my presentation of music. I have selected a few songs which have simple words, appealing melodies and rhythms and, most important, are repetitive. I have repeated these songs until they have been mastered by the babies.
>
> Two of the babies have expressed a strong preference for one particular song. In these cases, I have attempted to include the favorite song in each singing session since the babies become very excited and responsive when it is sung. From this song, I have moved to less familiar songs, hoping that the initial enthusiasm stimulated by hearing and singing a familiar song will carry over. The babies appear to derive much satisfaction from their increasing familiarity with and ability to perform these songs.

Among the songs selected initially were:

"Shoo, Fly, Don't Bother Me"
"Skip to My Lou"
"Three Blind Mice"
"London Bridge"
"Yonder Tree" (used specifically for imitation of animal sounds.)

Later, I added:

"Wake Up" - both include motions
"Put Your Finger in the Air" with the words.
"Take Me Ridin' in the Car" (because of the appeal of this activity.)

The recordings were by Pete Seeger, Cisco Huston, and Woody Guthrie, all of whom are particularly adept at presenting children's songs in a captivating manner. They also repeat each song several times, a great aid to teaching and learning.

When the babies were young (15-18 months), I held them on my lap or arms, facing me, and moved my body or knees to the rhythm of the song, at the same time articulating the words carefully and drawing the child's attention to my singing by holding him close and using exaggerated facial expression. I repeated the same songs until eventually the child attempted to sing. At this point, I simplified the words, concentrating on those which were repeated most often in the song and therefore easiest to perceive and repeat. For example, in presenting "Shoo, Fly, Don't Bother Me," I sang Shoo Fly in the correct places throughout the song, I encouraged him to add the remainder of the phrase, don't bother me. The phrase, for I belong to somebody, because of its length and the rhythm with which it is sung, comes much later. When the child is unable to perceive the words from the recorded presentation, I have repeated them more slowly, later without the recording.

Once the child has become interested in the actual singing of the songs, I have lessened body contact and emphasized the rhythm, concentrating only on the words. When the child becomes tired of singing, I terminate the music session rather than changing the emphasis to clapping, etc.

I have found that the length of time required to learn a song has lessened considerably (in some cases, the child enters in during the first presentation) as the children become able to focus their attention on the words and as I continually reinforce, with praise and enthusiasm, their attempts to sing the words. (Patricia Chernoff)

C. I usually make the initial introduction of puzzles to a child who has shown me through other activities, viz., nesting cups, pop beads, stringing beads, towering blocks, etc., that he has capable fine motor control for such a task.

The presentation of the puzzle comes always as a fun game - a kind of "I Can Do It; Now, Let's See If You Can" situation - and usually is connected with some facet of our other activities. For example, we see a picture of a cat - the cat puzzle; a dog - the dog puzzle.

We talk about the puzzle while it is still intact; then dump out the pieces (and this act I leave to the child, because he seems to derive great pleasure from the "dumping"); then talk about the side with colors on it and the dark, rough side; then trace with our fingers around the inside of the puzzle; then attempt to fit the pieces in the puzzle.

It is important that the child complete the task, but it is imperative that he not become so frustrated in his attempt to do so that he sets up a negative block against the activity. For this reason, I initially put the pieces back slowly in the puzzle so that the child can observe me. This is the "I Can Do It" part. We then see if he can do it, with the assistance he may require to prevent overt frustration. When there are signals that assistance is required, I put my hand over the child's hand on the puzzle piece, and I explain, "Turn it around," or "Turn it over," or "Try another space," as we do what each command directs.

We may work on a single puzzle for five sessions, but with the majority of children, this is more than sufficient time for them to successfully grasp the concepts of that one puzzle and to complete it. There is no urging on my part. For the most part, it comes from the child himself when he is presented, for example, with a three-piece puzzle which he knows he can complete. He completes the assigned puzzle and puts it aside. He is bored with this one and is ready to move on to bigger and better things in the line of puzzles.

The puzzle problem must be approached with care, I believe, because it encompasses so much that is new in the child's realm: perception of shape, depth, color; his senses of sight and touch to distinguish one edge shape from another. Puzzles, as with any other task presented to the child, cannot be pushed. The child will give his teacher indices by which she can go as far as his readiness permits. (Betty Pair)

D. I began working with the subject children when they were about 2 years old. Books had already been presented to the subjects as early as 16 months of age. The attention span was short at this stage.

To increase the attention spans, I tried to select books that appealed to the subjects. The most popular type of books were the picture books. (Examples: ABC Book, Things to See, Baby's First Book, Animal Panorama.) These books have big, colorful pictures the subjects can identify with easily - familiar animals (cats, dogs, birds) and foods (apples, oranges, etc.). These books were presented at each session. Sometimes the child received pleasure from turning the pages. I named pictures and imitated if the picture was an animal. The boys really got a kick out of this. We played other games, too. Sometimes the child enjoyed just pretending he was eating the picture of food.

We took books along on walks to help the subject child realize that the pictures represented reality. I pointed out a picture of a dog, for instance, in the book and then pointed to a live dog. Another game we played to help the subject remember pictures in books was to chase or feed animals that were in the books (i.e., squirrels and elephants). I also brought books with pictures that represented family members. Each picture was named after one of the family members. A family game set helped to make the learning more fun. Each figure in the set represented a member of a family (boy, girl, mother, father, etc.). The subjects had fun naming each figure or, sometimes, just knocking them over. Sometimes the child would take a figure to his parents and say its name. If he could not name the figure, the mother would tell him.

I included parents whenever possible. Sometimes the parent could get the child interested in a book when all the tutor's efforts failed. Other siblings were used to encourage the subject to look at books. For example, if the subject refused to look at a book, I would look at the book with an older sibling. The subject child became jealous and then joined in looking at the book with the tutor. We sang songs about pictures and dramatized. We also used toys along with the books. First, I would point out pictures in the book and then give the child a toy like the picture. This was very effective.

Books were made and left in the homes. The child and I would cut out pictures that were in magazines and make our own book. Other books that the child enjoyed were also left in the home. Sometimes the older siblings took an interest in the books left and would help the subject name pictures. This was another effective method since the subject child imitated older siblings readily. The subject child was praised whenever he could name, imitate or recognize pictures in any way. This encouraged the child to make an effort to learn....

.... The story book and record combination has been successful. First, I tell the story, pointing out different portions of the story. Then the same story is played on the record player. The first thing on the record that interests the child is the phrase, "Turn the page." After hearing the record several times, the child began to get more interested. The story is told at least once or twice a week until the child masters the story. Three of my boys have done a good job with Peter and the Wolf. They can name all the characters in the story and can describe many actions taking place by looking at the pictures......

.... Cliff (subject child) likes animal books. He knows many animals and can imitate them. He can name the more difficult ones such as the rhinocerous, zebra, seal, racoon, and buffalo. To encourage his interest, I have taken him to the zoo several times and also to the Rock Creek Nature Center, the Smithsonian Natural History exhibits, and the circus. His mother has taken him to the country.

This child really got a thrill out of seeing the live animals. Some of Clifford's favorite books include The Zoo Book, Animal Panorama, Animal Book, and several others.

Sam prefers books about horses. Whenever he sees a picture of a horse, his face lights up. I provided this child with as many horse books as I could find. I also took this child on trips to see horses and ride ponies. He has been on the carrousel several times, to the circus, and also had a ride on a live horse! Whenever I present a picture of a horse, Sam relates his experiences. He loves horses so much that he will sit for 45 to 60 minutes looking at a book with pictures of horses in it. (Lucille Banks)

E. One tutor reports the following books as being among the most successful: Things to See, A B C Book, Best Word Book Ever, Whistle for Willie, and (when the children were older) the illustrations of the Banks Street Readers, which depict city life involving Caucasian, Negro, and Oriental children. The object of the children's "lively interest" evolved from picture books (at age 15 months, when the project began) to story books (beginning at about 28 months). This teacher felt much more successful with realistic books than with those which: 1) depicted animals in human dress, engaging in human activities; 2) presented inanimate objects (e.g., airplanes) as being animate; 3) presented nursery rhymes, which contain many words for which referents are lacking, e.g., curds and whey. (Patricia Chernoff)

F. Another tutor notes that at the beginning of the project, toys were the major instructional vehicle, with books secondary. As the children matured, however, these roles were decidedly reversed. At first, even picture books were ignored, and became of interest to the children only after sufficient handling and naming of the material referent. For instance, a picture of a ball was ignored by the child until he had played with and named a real ball on a number of occasions. This tutor reports that the most effective books at this early stage were those dealing with the sensations, such as Pat the Bunny and Touch Me, or those having large and brightly colored illustrations, such as Things to See and Baby's First A B C. As the children grew, they became increasingly interested in the vehicles they saw while walking with this tutor (the reader will note that these children were all boys). At this time the Big Book of Trucks and the Giant Nursery Book of Things That Go were particularly enjoyed by the boys. Durable, cloth-bound books were recommended, since they could be left in the home "with some hope of finding them intact at the next session." (Betty Pair)

G. Project personnel furnished the following list of recommended books:

AGE - 15 to 18 Months

BOOK	PUBLISHER
* Pat the Bunny	Golden Press
* Touch Me Book	Golden Press
* Things to See	Platt & Munk
* 1st A B C Book	Platt & Munk
Baby's First Mother Goose	Golden Press
My Toys	Capitol
Words to Say	Golden Press

AGE - 18 to 24 Months

BOOK	PUBLISHER
Baby Farm Animals	Golden Press
My Toys	Capitol
Happy Animal Panorama	Grossett & Dunlop
Baby's Picture Panorama	Grossett & Dunlop
All by Himself	Plakie Product
Golden Happy Book of Numbers	Golden Press
Golden Happy Book of Words	Golden Press
Golden Happy Book of Animals	Golden Press
Golden Happy Book of A B C's	Golden Press
I Am a Bunny	Golden Press
* Is This The House of Mistress Mouse	Golden Press
* Best Word Book Ever	Golden Press
* Golden Shape Books (entire series)	Golden Press
The Fish	Dick Bruna Follett Pub. Co.
The Apple	Dick Bruna Follett Pub. Co.
Big Train Book	McGraw & Hill

AGE - 24 to 36 Months

BOOK	PUBLISHER
Woodland Animals	McGraw & Hill
Come Walk With Me	Capitol

---

* Books considered most valuable by project personnel

AGE 24 to 36 Months (Cont'd)

BOOK	PUBLISHER
Whistle for Willie	Viking
Night	Harper & Row
Little Verses	Golden Press
* Uptown Downtown	Banks Street Readers
* Around the City	
Saturday Walk	Wm. R. Scott
Dr. Seuss' A B C Book	Random House
Put Me in the Zoo	Random House
Cat in the Hat	Random House
Hop on Pop	Random House
* Go, Dog, Go	
Goodnight, Mom	Harper & Row
The Big Parade	McGraw & Hill
What's That?	Grossett & Dunlop
Who's That?	Grossett & Dunlop
When's That?	Grossett & Dunlop
Where's That?	Grossett & Dunlop
Big Beds & Little Beds	Wonder Books
* Peter and the Wolf	Doubleday
Aesops Fables	Maxton
The Bike Lesson	Random House
Are You My Mother	Random House
Bear's Picnic	Random House
A Fly Went By	Random House
* Giant Nursery Book of Things That Go	Doubleday
Giant Nursery Book of Travel Fun	Doubleday,
Giant Nursery Book of Things That Work	Doubleday,
Red Riding Hood	McMillian
One Fish, Two Fish, Red Fish, Blue Fish	Random House
The Snow Day	New York:Viking
What Is Your Favorite Thing To Touch	Grossett & Dunlop
Let's Go Shopping	Capitol
Up Is Up, Down Is Down	McGraw & Hill
The Wonder Book of Turtles	Eve Morel
A Special Place for Johnny	Whitman
Katie & the Big Snow	Maxton
I Learn to Tell Time	Capitol
The Brave Little Mouse	McGraw & Hill
Fast & Slow	Platt & Munk
I Learn to Button	Capitol
The Color Wheel	McGraw & Hill
Whisper in My Ear	Golden Press
Happy Zoo Book	McGraw & Hill

---

* Books considered most valuable by project personnel

H. Project personnel also furnished the following list of recommended toys.

MOTOR ACTIVITY TOYS:

1. String and Beads - Milton Bradley or Fisher Price
2. Peg Boards and Pegs - Milton Bradley or Child Craft Bowls for pegs.
3. Junior Turn a Gear - Child Guidance Toy
4. Snap and Play - Sifo
5. Bill Ding, Jr. - Sifo
6. "Building Toy" (in can)
7. Jumbo Block Wagon - Playskool
8. Pounding Bench - Playskool
9. Tool Bench - Playskool
10. Plastic Milk Bottles - Creative Playthings
11. Lock and Keys
12. Watch
13. Lacing Shoe - Playskool
14. Tinker Toys - The Toy Tinkers (A.G. Spaulding Bros., Inc)
15. Rock-a-Stack - Sifo or Fisher Price
16. Hexagonal Nesting Cups - Child Craft
17. "Barrel" Nesting Cup - Child Guidance Toy or Child Craft
18. Plastic Shapes on a Stick - Fisher Price Toy
19. Wooden Shapes on a Stick
20. Plastic Shapes on Plastic Screw
21. Plastic Nesting Cups
22. Measuring Spoons
23. Bang Ball - Sifo
24. Large Bags of Wooden Blocks
25. Geometric Shapes - Creative Playthings
26. Graded Circles, Squares, Triangles - Creative Playthings
27. Shape - Sorting Box - Creative Playthings
28. Rocky Board - Creative Playthings
29. Pile-up Clowns - Creative Playthings
30. Wood, Nuts, and Bolts - Creative Plaything
31. Beginner's Blocks - Creative Playthings
32. Pop-up - Sifo
33. O-Blocks - Sifo
34. Plain and Colored blocks - Sifo
35. Music Box Lacing Shoe - Fisher
36. T.V. Radio - Fisher Price
37. Pocket Radio - Fisher Price
38. Pop Beads - Fisher Price
39. Dump'n Fill Bottles - Child Craft
40. Lincoln Logs - Playskool
41. Hydroplane - Creative Playthings

DOLLS:

1. Negro Boy Doll
2. Baby in Pajamas
3. Baby (minus clothes)

TOY VEHICLES:

1. Dump Truck
2. Plastic Tug Boat
3. Bulldozer
4. Large Wooden Truck
5. Moving Van
6. Oil Trucks
7. Volkswagon
8. Airplanes
9. Pick-up Truck
10. Orange Dump Truck-Metal
11. Cement Mixer
12. Large Plastic Dumptruck

PULL AND PUSH TOYS:

1. "Snoopy Sniffer" - Fisher and Price
2. Milk Wagon - Creative Playthings
3. Playskool Wagon with Blocks - Playskool
4. Wagon - Sifo
5. Tyke Bike - Playskool
6. Metal Wagon - Child Craft
7. Tricycle
8. Magnetic Train - Creative Playthings
9. Creative Coaster - Fisher Price
10. Rainbow Wagon - 0 - Block - Sifo

MISCELLANEOUS:

1. Jingle Totem Pole
2. Magnets - Creative Playthings
3. Prism
4. Spin Top
5. Plastic Tools on Belt
6. Plastic Telephone
7. Playskool Postal Stations
8. Flannel Board
9. Pocketbooks
10. Plastic Duckling

11. Wind-Up Mouse
12. Can of Farm Animals
13. Big Top
14. Little Tops
15. Dishes: Cups, Saucers, Coffee Pots, Skillet, Plastic Silverware Tray
16. Mirror, Comb
17. Mirror Box - Creative Playthings
18. Puppets - Creative Playthings
19. Color Paddles - Creative Playthings
20. Playful Puppy - Creative Playthings
21. Lock Box - Creative Playthings
22. Number Sorter - Creative Playthings
23. Counting Frames - Holgate - Playskool
24. Number with Pegs - Creative Playthings
25. Number-ite - Judy
26. Toy Maker - Child Craft

GARDEN TOOLS:

1. Rakes
2. Hoes
3. Brooms
4. Shovels
5. Lawn Mower

OUTDOOR TOYS:

1. Balls
2. Pails and Shovels
3. Plastic Buckets
4. Plastic Scoops
5. Watering Cans
6. Skates

RECORDS: (Record Players)

1. Learning as We Play
2. Nursery Rhymes, Games and Folk Songs
3. Songs to Grow on for Mother and Child
4. American Game and Activity Songs for Children
5. Songbirds of America
6. Songs to Grow on
7. Noisy Baby Animals
8. Nursery Rhymes

MUSICAL INSTRUMENTS:

1. Bells - Creative Playthings
2. Drums and Drumsticks - " "
3. Wooden Sticks - " "
4. Xylophone - " "
5. Shaker Stick - " "
6. Castanets - " "
7. Triangle - " "

PUZZLES:

1. Plate Puzzle - Playskool
2. Fruit Puzzle - "
3. Colors I See Puzzle - Playskool
4. Building Puzzle - "
5. Form Board - "
6. Dog Puzzle
7. Puzzle Blocks
8. Rainy Day Puzzle
9. Color Match-ettes
10. Shapes, Colors, Forms
11. Transportation Puzzle
12. Missing Face Puzzles - Creative Playthings
13. Matchettes - Judy
14. Airplane - "
15. Tree - "
16. Boy - "
17. Cat - "
18. Dog - "
19. Butterfly - "
20. Tools (single piece)
21. Squirrel
22. Monkey
23. Flower - Judy
24. Three Kittens - Sifo
25. Fruit - "
26. Playground "
27. Rainy Day
28. Plate
29. Rubber Family
30. Rubber Cars
31. Rubber Ducks and Rabbits
32. Buildings We see - Sifo
33. Vegetable Puzzle - "

34. Eighteen Piece Bird Puzzle - Judy
35. Children's Favorites - Sifo
36. Children's Pets "
37. Peter, Peter, Pumpkin-Eater - Sifo
38. Five Pice Animal Puzzle
39. Simplex Bear
40. Rubber Counter - Creative Playthings
41. Wood Lotto - " "
42. Little Jack Horner
43. Fireman's Puzzles - Judy
44. Zoo Lotto
45. Horse Puzzle - Playskool
46. Hippo - "

VERBAL STIMULATION TOYS:

1. Plastic Magnetic Letters
2. Sandpaper Letters
3. Slates
4. Family Hand Puppets - Creative Playthings
5. Story Sets
6. Telephone

Evaluation

A. Measures of Achievement

All infants, experimental and control, were tested at age 14 months, before the experimental tutoring began. The Bayley Infant Scales of Development were used. The infants were retested with the Bayley at 21 months, and with the Stanford-Binet at 27 and at 36 months. Three other tests were also used at 36 months: 1) the Peabody Picture Vocabulary Test; 2) the Johns Hopkins Perceptual Test; 3) the Aaronson and Schaefer Preposition Test. (This consists of a magnetic board with three objects: an automobile, a boy, and a ball. The subject's command of prepositions is tested, when he is asked to place the ball "between the boy and the car," "into the car," "at the top of the board," etc.) The three part-time test administrators gave the tests at the project offices and were not told which children were in the experimental and which were in the control group.

Test results are summarized in the following tables. It can be seen that the experimentals were not superior to the controls at the outset. (In fact, they were slightly lower, though not significantly so.) However, as instruction proceeded, they apparently grew increasingly superior to the controls.

Table 3

MEAN IQ SCORES AT INTERVALS DURING INFANT EDUCATION PROJECT

Age, in Months	Experimental (n 28)	Control (n 30)	t
14	105	108	-.96
21	97	90	2.12*
27	101	90	3.35**
36	106	89	5.91**

* Significant, .05.

** Significant, .01.

Table 4

MEAN SCORES ON VARIOUS TESTS AT 36 MONTHS, INFANT EDUCATION PROJECT

Test	Experimental (n 28)	Control (n 30)	t
Peabody	87.11	76.23	3.77*
Johns Hopkins	11.61	6.60	4.18*
Aaronson-Schaefer	13.43	12.40	1.23

* Significant, .01

B. Other Evaluation Indices

It was the consensus of the staff that the tutors became an important and desired element in the families of the tutored children. As the project proceeded, tutors became increasingly accepted in the home and neighborhood, and were not perceived as inspectors or welfare agents. As rapport was gained with the family, especially the mother, the tutor began to take on the role of a confidante and helper in diverse areas such as budgeting family finances, and use of community resources. In a number of cases, this project resulted in the family's first visit to the zoo or the library.

Problems experienced by the tutors included: the number of disruptions caused by the moving of several rather mobile families; the problem of finding the child ready to participate at the time of the visit; the lack of a quiet place in which to hold the tutoring session.

Project personnel felt that the weekly group discussions contributed significantly both to tutor morale and methodology.

Tutor ratings of parent behavior were correlated with achievement at 36 months. Child neglect was sigificantly related to performance in the expected direction; i.e., the more neglected children performed poorly.

C. Modifications and Suggestions

It was suggested by program personnel that in action programs evolving from this research project, neighborhood learning centers could be tried, providing a relatively quiet environment for tutoring sessions. Neighborhood mothers and high school girls could be responsible for much of the tutoring, since a high level of formal education was probably more necessary in the research phase of the program than would be necessary in subsequent action programs. The number of research and administrative personnel could also be reduced to possibly one overall educational supervisor and a secretary. One field supervisor for every 12 tutors was recommended. It was further suggested that instruction might begin as early as age 6 months, for optimum efficacy.

Budget

Project Director	Half-time
Project Supervisor	Full-time
Educational Supervisor	Full-time
Tutors, one for every four children	Full-time
Test Administrators	$25 per test session per child
Project Secretary	Full-time
Books and Materials	First year: $40 per child Subsequent year: $25 per child
Office Materials	$750 per year
Reimbursement of Parents	$1.00 per day of tutoring $10.00 per test session
Office Rental	
Local Travel	

Quoted Sources

1. Schaefer, Earl S., "Intellectual Stimulation of Culturally-Deprived Infants." Mimeograph, 1965, excerpted from Mental Health Grant Proposal No. MH-09224-01.

For More Information

Earl S. Schaefer
National Institute of Mental Health
5454 Wisconsin Avenue
Chevy Chase, Maryland 20203

Msgr. Paul H. Furfey and Thomas J. Harte, Co-Directors
Bureau of Social Research
Department of Sociology
Graduate School of Arts and Sciences
Catholic University of America
Washington, D.C. 20017

THE EARLY CHILDHOOD PROJECT OF THE INSTITUTE FOR DEVELOPMENTAL STUDIES IN NEW YORK CITY

Introduction

The program was begun at preschool level and concentrated on basic skills, particularly those related to development of language and concept formation. In additon, a vertically-organized program of reading, maths, and science covered prekindergraten through third-grade. Steps were small and much practice was provided by specially prepared games. Individual and small-group work was used to allow each child to proceed at his own rate.

The children were almost all Negro and came from an area of Harlem typified by non-intact families living in tenements or crowded high-rise projects. They were selected on the basis of low occupational and educational status of the parents.

The program traces its beginnings to 1958, when Dr. Martin Deutsch and the Institute for Developmental Studies began studies of the intellectual development of disadvantaged children. In 1962, the Institute began to translate its findings into action in the form of a demonstration enrichment program for preschoolers. In 1964, the program was expanded so as to extend from preschool through grade three; by 1967-68 it included 17 classes in four public schools.

No overall trends are yet discernible for all waves. Results from the Stanford-Binet showed that experimental groups in Waves 1-4 made gains in IQ during the first 2 enrichment years, which were maintained subsequently. Control groups were equivalent to the experimentals on the pretest, but were significantly poorer on posttests.

Personnel

A considerable number of persons were involved in this project. However, many of them engaged principally in research or development of materials. Hence, this listing includes only teachers and others who directly actuate the program of instruction and related services.

A. Curriculum Director.

She was responsible for coordinating the work of curriculum staff and for supervising the research of the curriculum supervisors.

B. Curriculum Supervisor. (One in each of the four schools.)

She coordinated inservice training of the project teachers and assistant teachers in one school. She frequently observed the classroom, and provided demonstrations of desirable teaching behavior when needed. The curriculum supervisor maintained each teacher's focus on: individualization of instruction; encouragement of independent learning activities for children; implementation of changes in program. She met weekly with the other supervisors.

C. Teachers. (One in each of 17 classes.)

Besides teaching, each trained and guided an assistant teacher and prepared materials. The training of assistants was thought to be complete when assistants could manage classes on their own.

D. Assistant Teachers. (One per class. Bachelor's degree, not certificated.)

She assisted with classroom instruction, assuming primary responsibility for instructing some individuals or small groups. She checked completed work. She also assumed responsibility for one or two more items of instruction and their schedules of use.

E. Community Aides. (Three in number.)

Each knew all the parents in her area, through home visits; she informed parents of meetings and community resources (e.g., neighborhood councils, new housing projects), manned the Parent Center and helped parents expedite problems which interfered with school.

F. Social Worker.

She worked with parents and teachers toward solution of behavior problems of certain children, and helped parents to get assistance when they had problems, such as marital discord. She also worked in Parent Center. She was also in charge of supervision and training of community aides.

Additionally, several subject-matter specialists developed materials and curriculum plans (some commercially available or otherwise in print), for the training of parents in their use.

A Negro college student was hired to serve in a big-brother capacity outside of the classroom to four boys presenting behavior problems; the results of this venture were considered satisfactory.

Methodology: General

This program evolved through a decade of research and development by a staff of psychologists and teachers. Many other programs have been influenced by it. Considerable resources were available. The rationale and methods have been described with particular care, and thus a good deal of excerpting is appropriate here. This report can present only a sketchy summary of the extensive information available in the original source (New York University, 1967).

> For the children of the poor, whose lives are often lacking in richness and diversity, the traditional school can be an alien, frightening, hostile world, difficult to understand and filled with failure.
>
> Traditional curricula have been planned on the assumption that the child has already acquired certain cognitive and language skills which he can apply to new situations and on which the school can build at more complex levels. The disadvantaged child has had little chance to acquire such skills.
>
> In Institute classes, therefore, from prekindergarten through grade three, the consistent curriculum emphasis is on the cognitive areas of language, perception, concept-formation, and self-image. These are the areas in which the disadvantaged child has been least stimulated by his early environment and which are most operative in successful school learning.
>
> When the prekindergarten and kindergarten classes were originally established, it was our hypothesis that early intervention would adequately prepare disadvantaged youngsters for success in any regular school program. As our work has progressed, we have come to believe that although early intervention is of primary significance in affecting later school achievement, continuous and appropriately sequenced reinforcement in the grades is vitally important if the child is to maintain these gains throughout his school experience.
>
> It will be noted that the objectives of the Institute's curriculum program are founded on the abilities of the individual children rather than on stringent goals for each grade-level. Although our curriculum has been planned to go in logical sequence and order of difficulty from one step to another, the child is allowed to proceed at his own rate.

> It should also be noted that our curriculum is not a static one. It undergoes constant revision and refinement ...

Many of the learning materials used by the children were developed by the project's own curriculum specialists. These materials generally adhered to some of the important principles of programmed instruction: the learners proceed by small steps through a carefully ordered sequence, with success and immediate feedback of results. A good deal of the work was motorific, since disadvantaged children seemed to learn best when physically manipulating letters, words, pictures. Much of the learning was through games which the children could play individually or in small groups. This arrangement allowed children to practice and proceed independently at their own rate.

The curriculum was organized as five "programs": prekindergarten and kindergarten, reading, mathematics, science, and creative dramatics. Reading, math, and science had their roots in the preschool instruction and were the curriculum bases in grades one through three. Creative dramatics was one vehicle for these three subjects, as well as for self-expression in representing "the human condition".

This organization of the program reflected the Institute's concern for the continuity of the curriculum; this continuity was reflected by the addition of the primary grades to the original preschool program, by the re-organization of supervisory responsibility on a school basis rather than grade basis, and by the emphasis upon individual pacing regardless of the grade in which a child finds himself.

A. Prekindergarten and Kindergarten

At this level, the curriculum was centered around the four cognitive areas mentioned below:

1. Language development. The classroom contained partitioned listening centers equipped with tape recorder and padded earphones. Individual children could listen repeatedly to the teacher's recorded voice telling their favorite stories, often pausing to elicit verbal responses ("'What did Peter see when he awoke and looked out the window?' Pause. 'Did you say snow? Yes, he saw snow'.").

Telephone instruments were used for conversation between children or between child and teacher. With the speakers at some distance apart and not visible to each other, the children were compelled to speak distinctly and to use words rather than gestures (the children otherwise tended to communicate with a good deal of "Body English" accompanied by limited verbalization).

Language Masters were used by individual children to integrate visual and auditory stimuli simultaneously. This device presents a card with a picture or word visible to the child. The child hears the word simultaneously, and can respond by taping his own pronunciation of the word.

Some other techniques in language development at this level are illustrated in examples A to D of the Methodology: Specific Examples section.

2. Self-concept. Many children entering the program did not seem to know that people have names. Every day the teacher and assistant teacher greeted each child by name, and expected to be addressed by name in turn. A full-length mirror in each classroom allowed many children to see all of themselves for the first time. There was a camera for each room and each child was photographed throughout the year, participating in different activities. At Christmas time the child made a photo-album and took it home to his family. (These photos proved to be excellent language stimulants in the program, as the children discussed the photos with parents, teachers, and others.).

The primary objective was for each child to learn to cope successfully with the classroom environment as a means of establishing a feeling of competence which in turn would lead to enhancement of the child's self-image. Children were expected to learn self-reliance and self-care. They were encouraged to remove, put on, and hang up outer clothing; to get classroom materials from storage when needed and to return them; and to learn classroom routines.

Another example of the work in development of self-concept was the weekly visit made by a young Negro man to the classes. He grouped the entire class to participate in listening to and interpreting the timing and beat of musical records and instruments. His exercises took the form of a run-Harlem-rhythm-African-Negro-profile, which not only served the purposes of entertainment and enlightenment, but also served the purpose of instilling a sense of pride and respect for the community of Harlem and similar communities. This work was also performed throughout the grades.

3. Perception. The children often came from environments offering a limited range of simultaneous and competing stimuli (e.g., TV on, siblings crying). Thus the prekindergarten and kindergarten environments were organized by means of a special arrangement of equipment in the room. Different activities were concentrated in different parts of the room, often separated by partitions. The objective was to provide prepared activity areas in an orderly atmosphere which would offer perceptual experiences without barraging the children with too many distracting stimuli.

4. Concept formation. Many of the activities described above and below had concept-formation as an objective: the child learned to identify relevant traits which allowed otherwise dissimilar objects to be responded to as a class. (Buttons are buttons regardless of color, size, or means of attachment. See also the description of matrix games in the following section, Methodology: Specific Examples.)

B. Reading Program

Prior to grade one, children learned the forms and names of letters and left-to-right order in prekindergarten. In kindergarten they worked increasingly with two-dimensional (rather than three-dimensional) letters, and learned the sound of selected letters. These sounds were then blended into short words which the children learned to read. The Sullivan Readiness in Language Arts Program was added to implement objectives in the development of beginning reading skills. In the grades, they progressed to learning to read and comprehend more words (The Beginning Reading Program) and hence to reading books of their choice, writing book reports, and creating appropriate products (The Individualized Reading Program). Subsequently, the Sullivan Reading Program replaced the Stern Program in most of the grade classrooms. In beginning reading, word recognition skills were built using primarily a phonic vocabulary approach. Stern Workbooks were the basic guide, supplemented by Merrill Linguistic Readers, SRA early-readers, and teacher-made and Institute materials. Children worked in small groups according to level of skill, and were moved from group to group at the teachers' discretion. Word comprehension was built through vocabulary work and story analysis.

The Individualized Reading Program of grades two and three employed classroom library books, Charles Merrill Readers, SRA Reading Laboratory, and Readers Digest Skillbuilders. A series of typed word-recognition check-lists was prepared by the project reading specialist for classroom teachers' use. The specialist visited schools twice per week, assisting with the diagnosis of individual reading problems and the assignment of appropriate materials.

C. Mathematics Program

After 2 years' trial of other materials on a graded basis, the project staff adopted an ungraded mathematics curriculum of its own. Basically, this was a list of objectives, in sequence, along with suggested methodologies for attaining these objectives. The curriculum actually began prior to grade one with preliminary mathematical concepts. These appeared superficially non-mathematical (discrimination, sorting, conserving, matching), but were considered to be prerequisite to understanding of mathematics. Next came number concepts such as set, summing, equations, and derivation of algorithms, followed by work in measurement and geometry. The Institute math guide was supplemented by the Rasmussen Math Lab, Cuisenaire Rods, Stern Structural Kit, Houghton-Mifflin Modern School Mathematics, and tapes and games devised by project staff.

D. Science Program

As in mathematics, the project staff experimented with certain other materials, found them wanting, and began to develop their own units. An electricity unit with an inquiry approach was written and tried. However, the AAAS Process Approach to science was also judged relevant to the program's objectives, and its trial use began in 1967-68 in grades two and three. The processes emphasized by AAAS in the primary grades (measuring, classifying, inferring, etc.) are considered prerequisite to later learning in science as well as other areas. One unit (1 hour) of AAAS was taught each week. Since the AAAS approach required the purchase of many small items, purchasing was done centrally and the materials were distributed to teachers.

E. Creative Dramatics Program

> Early in 1966, the Institute for Developmental Studies added creative dramatics, or teacher-guided play, to its enrichment program as a technique to stimulate and reinforce linguistic skills, to extend the means for building a positive self-concept, and as a method of vitalizing the content of various subject areas. Guided dramatic play is that activity in which children create drama through their own spontaneous dialogue and action under the guidance of the teacher who has been familiarized with the dramatic art process.
>
> Educators have long been aware of the tendency of children to engage themselves spontaneously in dramatic-

> play, and have noted the high degree of involvement and the sustained interest which children exhibit when so engaged. Many investigators of the problems of the disadvantaged child and the school curriculum have suggested that since these children tend to be more motor-oriented than verbally-oriented to learning, dramatic play might be a means of helping the child to successfully relate himself to the subject matter which the school attempts to present. Simply allowing for spontaneous dramatic play to take place in the classroom does not, however, give the child the tools he needs for using the dramatic form effectively and efficiently to gain understanding of the subject matter or insight into his own personal responses to a range of ideas and emotions.
>
> The spontaneous playmaking of young children is generally unstructured, plotless, and repetitive. The materials he uses are those with which he is most familiar: sweeping the floor, fixing a meal, building a road and driving a car on it, putting out a fire, etc. Occasionally a complication is introduced: the cake burns, the car breaks down, the fire hose bursts. These tentative plot attempts are likely to be based on direct experience with such problems, and solutions are limited to those which the child has seen used......The teacher's role, then, is to extend and enrich the child's dramatic play through interjecting new role and situation possibilities......In the Institute's program it is planned that guided dramatic play will be used across the curriculum as a teaching approach to particular subject areas such as language arts and social studies......It should be made clear that the Institute is not concerned with the production of formal plays for presentation to an audience. Guided dramatic play is process- rather than product-centered, and participant- rather than audience-centered.

As the children proceeded through the grades, they were given increasing responsibility for finding the problems of their dramatic play and for predicting consequences, seeking solutions, and integrating these into a total pattern. Parents, also, were instructed in the direction of creative dramatic play with their children. The creative dramatics specialist instructed and observed the teachers and supervisors in the implementation of these techniques.

F. Parent Activity

Each teacher conducted a monthly meeting for parents, and emphasized specific techniques the parents were to use to support the school program. These ranged from making lotto games for home use at the pre-K level to asking questions from story books brought home by the children in grade three. Parents were also encouraged to visit the classroom for the same general purpose.

Three rooms were donated by a local church for use as a Parent Center. Here, parents met in an informal atmosphere to pursue such interests as sewing and cooking as well as to learn additional ways of assisting in their children's education. They were encouraged to air complaints and discuss problems regarding the program and the schools, and to organize special events (40 parents arranged and attended a trip to the U.N.). The project's community aides and social workers were associated with the above activities and also provided an additional school-family liaison through their individual efforts.

G. Inservice Training

For new prekindergarten teachers, there was a 3-week orientation period before classes began. Periodically throughout the year, all teachers attended workshops and seminars conducted by consultants, outside speakers, and Institute staff. The objective of the inservice training was to sensitize teachers to the situation of their students, and to familiarize them thoroughly with the program's rationale and goals as well as its methods.

H. Dissemination

The Institute also developed many vehicles of dissemination, including films, seminars, workshops, classroom visitations, displays, and publications. The program served at least in part as a model for many other programs in the country.

Methodology: Specific Examples

Examples A to E, following, are representative of the prekindergarten and kindergarten program. Examples F to H illustrate, respectively, the reading, mathematics, and creative dramatics programs. Again, it should be noted that many more examples are presented in the original source (New York University, 1967).

A. The Letter Form-Board for prekindergarten and kindergarten children was developed at the Institute to provide a visual-motor experience in the development of letter-discrimination skills. It consisted of large wooden letters which were fitted into appropriately shaped slots on a board. The use of this board was based upon several assumptions: 1) the advantaged child may have facility with learning to read by whole-word methods because he is already familiar with the alphabet prior to first-grade, but the disadvantaged child is not; 2) the Board provides immediate feedback to aid learning - the child knows that this response is correct only when the letter fits; 3) the process of making fine discriminations, such as between O and Q, is learned; 4) the subsequent learning of the names and sounds will be easier if the children are first familiar with the letters on a purely visual and tactile basis.

Research with the board showed that letter-naive children did not profit greatly from working in pairs with more knowledgeable children (and presumably, then, should work alone or with other letter-naive children). Another study revealed that children introduced to a few new letters each day learned much faster than those faced with all 26 letters from the first day.

B. Another technique used in the prekindergarten and kindergarten classes for the development of languagewas the game Language Lotto, which differs from standard lotto games in that it can be played at different language and conceptual levels, or using no language. Standard lotto games are usually restricted to non-verbal visual matching of pictures.

Language Lotto consists of six games, each with several boards and up to 48 cards. The games are ordered to proceed from simple to complex, from single words to sentences, from concrete to abstract. Familiar objects are pictured in the first game, prepositions in the second, actions in the third, and so forth. In each, the child learns first on a receptive level and then on a productive language level.

C. Matrix Games were played by preschoolers:

Ideally, what you should see is five or six children sitting in small chairs in front of a board displaying 16 pictures in a 4-picture x 4-picture square. (The illustration used is the second in a series of 20 matrices, each having a different linguistic and cognitive emphasis, such as prepositions, negatives, or classifications.) Examination of the pictures reveals certain regularities: in the first column, all of the children are holding cookies; in the second, all of the children are wearing gloves; in the third all are drinking milk; and in the fourth all are wearing hats. Scanning the pictures by rows reveals that each row has a common element: one boy, two boys, one girl, and two girls.

If the children had been playing the games for a few weeks, one of the children might be sitting in the adult chair while the other four and the teacher are sitting in children's chairs. The child playing the role of the teacher might be heard saying to "her" class, "Close your eyes, no peeking." Then she would get out of her chair and cover one of the pictures with an opaque magnetized rectangle. "Now open your eyes. Who can tell me something about the picture that I covered?" Whereupon several of the children raise their hands, and the child-teacher calls upon one of them.

What is the content involved in figuring out the covered picture? What must the child be able to do in order to come up with the answer? To produce a complete answer, the child must be able to (1) scan the pictures both vertically and horizontally, (2) abstract the common element of both the row and the column of the hidden picture,(3) combine these two pieces of information, (4) produce the information in a sentence, and (5) explain in words how he figured it out. Underlying the solution to this type of matrix problem are classificatory skills, which have been found to be more difficult for children from lower-class backgrounds than for their middle-class peers, especially when the contents are presented by pictorial representation.

The Matrix Games curriculum has concerns other than the complex cognitive abilities involved in solving the above problem. Within the context of the children's play there are other objectives: to speak clearly; to follow complex directions; to develop new vocabulary and concepts; and, most important, to be an independent learner.

The matrices were used in a programmatic sequence designed to carry the child forward in small steps with frequent feedback. Sometimes the game was played between the teacher and one child, and sometimes by small groups.

Many of the activities so far described for the prekindergarten and kindergarten were engaged in during the quiet work time which began the day at these levels. This time was designated specifically for individuals and small groups to practice cognitive skills, usually in game situations. Noisy activities such as blockbuilding were excluded during this period.

D. As with many of the other activites, the game of Simon Says was played in a manner consistent with the principles of programmed instruction: the children were taken through a planned sequence in small steps and with immediate feedback as to their performances. The principal objective was that of getting the children to attend to essential verbal cues while learning to ignore incorrect visual or nonessential verbal cues, a skill in which it was felt that these children particularly needed help.

The teacher introduced the game giving correct verbal and visual cues ("Simon Says, Put your hands on your hips"). After the children had mastered this phase of the game, the visual cues were omitted, and the children relied on listening (with the teacher watching to see that each was responding to her verbal cue and not to neighbor's visual cue). She then moved in order to more complex directions, telling and mis-showing, then occasionally omitting the necessary clause, "Simon Says", and finally omitting and mis-showing.

E. It has been frequently noted that disadvantaged children have a present-time orientation, with limited concepts of past, future, and extended time units such as weeks and months. A calendar curriculum was devised utilizing the principles of programmed instruction to teach these concepts. Each week the kindergarten teacher placed a 1-week calendar of seven rectangles in a row upon the board. Saturday and Sunday, both together at the left, were marked with X's in colored chalk. Each day she placed an X in the box for that day. These X's were white, to distinguish shcool-days from non-school days. She also mentioned the name of the day, but did not require yet that it be learned. As a second, third, or fourth row was added, the concept of week was learned and that of month began to be learned. The children also began to mark their own personal calendars each day. Teachers began to add variations, such as games which built number and phonic skills as well as names of day ("Find the box for the day in third week that begins with the sound t").

F. A number of reading games were developed by the Institute staff. These dealt mostly with first- and second-grade reading skills, and were played by two to four children. The following is an example:

Sight Word Bingo

I. Purpose: The game offers practice in recognition of sight words taught in Book B of the Stern workbooks.

II. Materials: The game includes four playing boards, each divided into 25 squares in which 24 sight words are printed, the same words in different squares on each board. The center square is blank. Twenty-four sight word-cards and bingo chips are also included.

III. Play: The game can be played by two to four children. Each child takes one (or two) playing boards. All the players cover with a chip the blank space in the center of their boards. The word-cards are mixed and placed face down on the table. The first player picks the top word-card and reads the word. All the players then scan their boards, left to right, top row to bottom row. When a player finds the word on his board, he covers it with a chip.

After a word is read from a word-card, the card is placed face down on the table.

The child to the right of the first player picks the next word-card and reads the word. All the players again scan their boards and cover the word with a chip. The game continues in this fashion with players taking turns reading the word-cards. The first player to cover five words in any direction is the winner.

IV. Preceding Activities: Children should be introduced to the sight word in Book B of the Stern workbooks before playing the game.

V. Succeeding Activities: Children should be introduced to additional sight words needed for reading specific easy reading books assigned by the teacher to the individual child. Children can make their own dictionaries for new sight words.

G. A sample activity of the mathematics program:

> Review addition using the abacus, but without exchanging. Ask a child to show the sum of 52 and 7, for example, on the abacus. Next have a child try a similar example, requiring regrouping, such as 52 and 8. If he is stumped, ask him to tell you what the trouble is. He may tell you that he does not have enough beads in the ones column. Now ask him what he should do, and prompt him to say that nine and one more puts him into the next column, or place. Show the children at this point, that when you exchange the 10 ones for one 10, you must place a zero in one's place to hold the two columns. Several other similar examples stressing the use of the zero should be presented.

H. In the creative dramatics activities, the teacher played any of several kinds of roles. For instance, when children had initiated a spontaneous play, she may have entered as one of the characters, who: 1) sought help ("Where do I buy my ticket for this train?"), 2) changed the situation ("A child has just been hurt on the street. Can you help us?"), or 3) added another dimension to the story which the children had set up ("I have a lot of wonderful gadgets for sale that you could use in your housework. May I show them to you?").

Or, she may have assumed the usual teacher role in a more direct initiation of dramatic play ("Let's pretend that this rug is a boat. Where shall we go? Who will help row the boat? Who will be the lookout?").

Evaluation

A. Measures of Achievement

While many measures were used at various times in this program, including the Gates-MacGinitie, the WISC, and the Lorge-Thorndike, three tests were used more consistently to record progress: the Stanford-Binet, the Peabody Picture Vocabulary Test, and the Columbia Mental Maturity Scales (Goldstein, 1968b).

Six "waves" of pupils were tested, one having begun in the program each year 1962-67. Wave 1 was in fourth-grade in the 1967-68 school year, Wave 4 in first-grade, Wave 6 in prekindergarten. The number of pupils originally in each wave varied between about 120 and 200, including controls.

The first two waves were considered to be a pilot study, and it is these two which in 1967 and 1968 respectively had reached the end of their "enrichment period." Goldstein (1968a) points out that these waves did not in fact receive much enrichment beyond kindergarten (i.e., 2 years) because the grade classes were not very different from the regular ones. Starting with the third wave in 1964-65, the program began in earnest, although enrichment continued to be concentrated chiefly in the first 2 years.

For this description a careful analysis of the total testing program, 1963 through 1968, was carried out using data from all available reports (see sources). While the table compiled was incomplete, it emphasized the fact that evaluation of this program has been hindered by several factors. The first is the attrition rate. By 1967, 53 percent of the experimental pupils in one school in the first (1962-63) wave had been lost, along with 83 percent of their controls (Deutsch and Goldstein, 1967a). Since the reasons for attrition cannot be determined, its effects upon the mean ability of the sample are unknown. While it is possible that the more able children were more mobile than the less able, in Harlem at least, the opposite may also have been true. To keep the classes within practical limits, new pupils were taken into the program, thus confounding much of the evaluation for any reader.

The second factor which has hindered evaluation is the arrangement by which only sub-samples were tested, generally speaking, at each testing time (fall and spring). The figures offered in the series of evaluation reports do not enable the reader to determine how the sub-samples were selected, nor whether there were any other possible sources of bias. This leaves doubts about the comparisons, even in the face of the sophistication of the analysis of variance employed.

A third factor making interpretation difficult is the use of different tests at various points in the program. The Stanford-Binet offers the most consistent record.

The A.I.R. 1963-68 analysis did not reveal any clearly distinguishable trends, and it is expected by the Institute for Developmental Studies that such trends will only be identified when further data analysis now in progress is reported, probably in Part II of the Institute for Developmental Studies' report to the Ford Foundation.

The measured benefits of this program are therefore reported here in terms of fairly isolated analyses carried out by the I.D.S. staff, and the interpretations are theirs. The statistical technique most frequently used was analysis of variance. It appears that this technique was chosen on account of wide variations in the distributions of scores of groups being compared; the exigencies of the practical situation resulted in control groups that were relatively poorly matched on test scores, although similar in age and socio-economic background to the experimental samples. This means that for the layman it is more difficult to draw general conclusions.

Deutsch and Goldstein (1965) reported that for the second wave Stanford-Binet means on pretest were not significantly different for experimentals and basic controls, whereas significant differences (at the 5 percent level) were found to exist between the groups on posttest at the end of the prekindergarten year (see Table 5).

Table 5

MEAN STANFORD-BINET IQ SCORES FOR EXPERIMENTAL AND CONTROL SUB-SAMPLES IN WAVE 2 OF THE EARLY CHILDHOOD PROGRAM FALL 1963 AND SPRING 1964 (PREKINDERGARTEN)

Sub-sample drawn from	Mean Stanford-Binet IQ Fall 1963	Mean Stanford-Binet IQ Spring 1964
Experimental Wave 2	93	99
Basic Control Group (C_{ss})	95	94

[Source: Tables 1 and 3, pages 3 and 4, Deutsch and Goldstein (1965)]

Similarly, Deutsch and Goldstein (1966b) reported that for the first wave, Stanford-Binet means on posttest at the end of 2 years of enrichment were significantly better (at the .01 percent level) for experimentals than for basic controls. The two groups were presumably initially not significantly different on this test; certainly they are reported (Deutsch and Goldstein, 1966b) as being matched on the Peabody Picture Vocabulary Test (PPVT). On the Columbia Mental

Maturity Scale (CMMS), the means for experimental and basic control groups were not statistically significantly different on pretest, but were (at the .01 percent level) on first posttest, only to become not different again on second posttest (see Table 6).

Table 6

MEAN COLUMBIA MENTAL MATURITY SCALE IQ SCORES
FOR EXPERIMENTAL AND CONTROL SUB-SAMPLES
IN WAVE 1 OF THE EARLY CHILDHOOD PROGRAM,
WINTER 1962-63, SPRING 1963 (PREKINDERGARTEN),
AND SPRING 1964 (KINDERGARTEN)

Sub-samples drawn from	Mean CMMS IQ Winter 1962-63	Mean CMMS IQ Spring 1963	Mean CMMS IQ Spring 1964
Experimental Wave 1	101	104	97
Basic Control Group (C_{ss})	105	92	94

[Source: Tables 5, 6, and 7, Deutsch and Goldstein (1966b)]

Deutsch and Goldstein (1966b) also reported that for the second wave, CMMS means were not significantly different for experimental and basic control sub-samples on pretest. On first posttest the experimental sub-sample was significantly better, but on second posttest the control group was significantly superior (see Table 7).

For the third wave, Deutsch and Goldstein (1966b) reported that Stanford-Binet means were not significantly different for experimental and basic control sub-samples on pretest, nor on first posttest. On PPVT means, however, differences in favor of the experimentals were shown on posttest (at the 1 percent level) but not pretest. For CMMS means the reverse was true. This series of testings illustrates well the inconsistency of results obtained under the experimental conditions prevailing in this program. The attrition of the basic control group was severe, perhaps accounting for some of the inconsistent patterns.

Table 7

MEAN COLUMBIA MENTAL MATURITY SCALE IQ SCORES FOR EXPERIMENTAL AND CONTROL SUB-SAMPLES IN WAVE 2 OF THE EARLY CHILDHOOD PROGRAM, FALL 1963 AND SPRING 1964 (PREKINDERGARTEN), AND SPRING 1965 (KINDERGARTEN)

Sub-samples drawn from	Mean CMMS IQ Fall 1963	Mean CMMS IQ Spring 1964	Mean CMMS IQ Spring 1965
Experimental Wave 2	102	103	96
Basic Control Group (C_{ss})	101	94	101

[Source: Tables 14, 15, and 16, Deutsch and Goldstein (1966b)]

Later, Deutsch and Goldstein (1967b) reported an analysis of Stanford-Binet scores for each of the first four waves. Besides indicating that the pretest means of the experimental and basic control groups were not significantly different in the case of each wave, the analysis showed that for the second through fourth waves the experimental groups performed significantly better on first posttest (at the end of prekindergarten) when compared with the basic control groups pooled with the groups chosen as supplementary controls (C_k). Significant differences were also found when comparing the experimentals with the pooled controls at the end of kindergarten (second posttest). The means are shown in Table 8.

Deutsch and Goldstein (1967b) summed up this section by writing:

> The analyses .... give strong evidence for the effectiveness of the experimental treatment in terms of producing IQ differences in favor of the experimental group at the end of the prekindergarten period and maintaining these differences at the end of kindergarten.

The same report mentions, however, that although the second wave experimental pupils had a higher mean on the Stanford-Binet at the end of first-grade (third posttest), this mean was not significantly different from that of the two control groups (C_{ss} and C_k) combined.

Table 8

MEAN STANFORD-BINET IQ SCORES FOR EXPERIMENTAL, CONTROL AND SUPPLEMENTARY CONTROL SUB-SAMPLES IN WAVES 2 THROUGH 4 OF THE EARLY CHILDHOOD PROGRAM ON PRETEST

Sub-samples drawn from	Mean Stanford-Binet IQ								
	Wave 2			Wave 3			Wave 4		
	Pre	Post 1	Post 2	Pre	Post 1	Post 2	Pre	Post 1	Post 2
Experimental Waves	93	99	95	92	101	102	91	97	101
Basic Control Group (C_{ss}) Pooled with Supplementary Control Group	92	90	92	90	93	94	89	91	92

[Source: Tables 1, 3, and 4, pages 14, 16, and 17, Deutsch and Goldstein (1967b)]

Deutsch and Goldstein (1967b) also reported that the Gates-MacGinitie Primary Reading Tests and the Gates Advanced Primary Reading Test were used in first- through third-grades for the third, second and first waves. While the third wave showed significantly better scores for the experimentals compared with the basic control group (C_{ss}), the other two waves revealed no differences between groups. The authors commented that the third wave experimentals showed better performance in a skill which the enriched curriculum does not stress.

In a study to detect the practice effects of frequent testing using the Stanford-Binet, Deutsch and Goldstein (1967d) compared sub-samples more frequently tested with those less frequently and found no significant difference. In the same report the first wave's results on the Stanford-Binet at the end of prekindergarten, kindergarten and third-grade were tabulated. Comparison of experimentals and basic controls (C_{ss}) showed significant differences (at the 5 percent level) in favor of the experimentals on each testing. Deutsch and Goldstein remarked that:

> The experimental treatment .... was effective in maintaining the Stanford-Binet IQ's of the experimental

children at a level significantly higher than that of the C_{ss} subjects, over a period of 4 to 5 years.

Goldstein (1968a) reported a study of Metropolitan Achievement Test scores obtained in the fall of 1966 for children in the first and second waves (then in third- and second-grade), from experimental groups only. He concluded that the long-term effects of the enriched prekindergarten and kindergarten curriculum had not been evidenced in a significantly higher level of achievement for the experimental subjects, as measured by the reading and word knowledge subtests of the MAT. He attributed these results to the fact that the first two waves were pilot groups, and received little enrichment beyond the end of kindergarten.

It should be noted that several other tests of cognitive achievement were employed, including some developed by the Institute for Developmental Studies. The chief findings to date, however, are not based upon them.

B. Other Evaluation Indices

Over the 6 years of operation of this program observations of teachers and pupils, and evaluations of techniques and materials have been made by project staff. Many of these are described in a recent report (New York University, 1968b). The descriptions add to the impression created elsewhere of a detailed and complex experimental program which is appreciated by its participants, both adults and children. Parent response to the program has been excellent, culminating in strong requests in 1968 for its continuation.

C. Modifications and Suggestions

A proposal submitted by the Institute for Developmental Studies for the 1968-69 year showed that the basic program would be continued in its 1967-68 form. Changes proposed were chiefly directed towards increasing the scope of curriculum and methods assessment, towards strengthening the curriculum through intensive study of its present content, and towards deepening the analysis of teaching strategies and classroom management. Many possible innovations were proposed for trial, such as combining mathematics and science in a laboratory setting in two of the schools in the program, for pupils in the grades. None was named as absolutely essential for continuation of the basic program.

Budget

The budget for replication of this program cannot be estimated. The cost per pupil per year has been \$1800-\$2100, but included in this figure are many indirect costs related to the research and development aspects of the program. These would not all be incurred again, by any means.

In 1967-68 there were four full-time supervisors; the salaries of three were paid in part from the program. Similarly, the teachers were paid in part from the program, while the assistant teachers, the community aides, the social worker, and all other program personnel were paid for in full from the program.

Quoted Sources

Deutsch, M. and Goldstein, L. S. *Progress report January 1 1965 - June 30 1965: An evaluation of the effectiveness of an enriched curriculum in overcoming the consequences of environmental deprivation*. (Contract OE-5-10-045). New York: New York University, Institute for Developmental Studies, 1965(?).

Deutsch, M. and Goldstein, L. *Progress report July 1 1965 - December 31 1965: An evaluation of the effectiveness of an enriched curriculum in overcoming the consequences of environmental deprivation*. (Contract OE-5-10-045). New York: New York University, Institute for Developmental Studies, 1966(?)(a).

Deutsch, M. and Goldstein, L. S. *An evaluation of the effectiveness of an enriched curriculum in overcoming the consequences of environmental deprivation (OE-5-10-045), January 1, 1966 - June 30, 1966.* New York: New York University, Institute for Developmental Studies, 1966(?)(b).

Deutsch, M. and Goldstein, L. S. *An evaluation of the effectiveness of an enriched curriculum in overcoming the consequences of environmental deprivation (OE-5-10-045), July 1, 1966 - December 31, 1966*. New York: New York University, Institute for Developmental Studies, 1967 (?)(a).

Deutsch, M. and Goldstein, L. A. *An evaluation of the effectiveness of an enriched curriculum in overcoming the consequences of environmental deprivation (OE-5-10-045), January 1, 1967 - June 30, 1967*. New York: New York University, Institute for Developmental Studies, 1967(?)(b).

Deutsch, M. and Goldstein, L. S. *An evaluation of the effectiveness of an enriched curriculum in overcoming the consequences of environmental deprivation (OE-5-10-045). Supplementary report, October 23, 1967*. New York: New York University, Institute for Developmental Studies, 1967(?)(c)

Deutsch, M. and Goldstein, L. S. *An evaluation of the effectiveness of an enriched curriculum in overcoming the consequences of environmental deprivation (OE-5-10-045). Supplementary report, November 10, 1967*. New York: New York University, Institute for Developmental Studies, 1967(?)(d).

Goldstein, L. S. *An evaluation of the effectiveness of an enriched curriculum in overcoming the consequences of environmental deprivation (OE-5-10-045) July 1, 1967 - December 31, 1967*. New York: New York University, Institute for Developmental Studies, 1968(?)(a).

Goldstein, L. S. *An evaluation of the effectiveness of an enriched curriculum in overcoming the consequences of environmental deprivation (OE-5-10-045) January 1, 1968 - June 30, 1968.* New York: New York University, Institute for Developmental Studies, 1968(?)(b).

New York University, Institute for Developmental Studies. *Interim progress report to Ford Foundation, Part I, November 1967*. New York: New York University, 1967.

New York University, Institute for Developmental Studies. *Progress report, September 1, 1967 - April 30, 1968, continuation of services as regional research and resource center in early childhood*. New York: New York University, 1968(?)(b).

Other Sources Not Quoted

New York University, Institute for Developmental Studies. *Progress report, August 1967 - February 1968: Research program in early childhood education*. New York: New York University, 1968(a)

Victor, J. and Coller, A. R. *Preliminary report on the use of several early childhood inventories for the evaluation of educational programs, Report #3A*. New York: New York University, Institute for Developmental Studies, March 1968.

For More Information

Dr. Martin Deutsch
Institute for Developmental Studies
School of Education
New York University
New York City, New York

THE PERRY PRESCHOOL PROJECT

IN YPSILANTI, MICHIGAN

Introduction

The Perry Preschool Project was aimed at assessing the longitudinal effects of a 2-year program consisting of a daily 3-hour cognitively oriented nursery, a weekly 90-minute home visit, and less frequent group meetings of the pupils' parents.

The students were 3- and 4-year old Negro ~~and~~ disadvantaged and functionally retarded children, whose pretest scores on the Stanford-Binet Intelligence Scale were not above 85.0.

The program described here operated from September 1962 until June 1967. Approximately 24 children participated in the preschool annually. Half of these were 3 years of age, the other half were 4-year olds. Each of these age groups was designated as a "Wave"; consequently, two different "Waves" participated each year.

For each group or "Wave" of children entering the experiment, the Stanford-Binet Intelligence Scale, the Leiter International Performance Scale, and the Peabody Picture Vocabulary Test were used at the start of the experiment to test the intellectual ability of the children. Few significant differences between the experimentals and the controls were noted at this time. These and other tests were also used to measure intellectual ability later in the program. The benefits claimed for the program are those measured by the California Achievement Test in reading, language, and mathematics. These tests were given at the end of first grade and again at the end of second grade. The results showed significant gains for the experimentals over the controls.

Personnel

The following personnel were instrumental in the planning, execution, and evaluation of the program.

A. Director. (Part-time; experience in experimental preschool; trained in congnitive curriculum.)

B. Curriculum Supervisor. (Full-time; experience in experimental preschools; trained in cognitive curriculum.)

C. Program Supervisor. (Full-time; experience in experimental preschools; trained in cognitive curriculum.)

D. Teachers. (Four each year; full-time; mean age 32; certificated in elementary education, speech correction and/or mental retardation; mean experience 10 years; received preservice training.)

They taught in the 3-hour morning preschool; visited one home each afternoon during the week to tutor one child and involve the mothers in the teaching activities; organized parent meetings.

Methodology: General

From its inception the Perry Preschool was a school-organized, district-sponsored effort to effect a positive change in the behaviors of culturally deprived children which would eventually lead to academic success and social adjustment in the elementary grades.

The children were selected on the following criteria: residence in a home with a low socio-economic status as determined by an adaptation of the Deutsch Cultural Deprivation Index; age three or four; and functionally retarded as measured by the Stanford-Binet Intelligence Scale. The total number of children meeting these criteria for each year of the study were then divided into two matched groups on the basis of mean IQ, mean C.D. rating, percent of boys and girls, percent of 3- and 4-year old children, and percent of working mothers. One group was designated the experimental group, the other the control group.

The experimental group attended the morning program 5 days a week; each child also received a 90-minute afternoon home-based visit once a week from one of his four teachers. Contact with the control group was limited to the collection of data.

The various groups of children who participated in the program were designated as "Waves." Wave 0 started preschool in 1962 and consisted of 4-year olds who at this writing have spent a year each in the nursery, kindergarten and first through fourth grades. Wave 1 also began in 1962, but consisted of 3-year olds who spent 2 years in the nursery and 1 year each in grades kindergarten through third. All subsequent waves had 2 years of nursery prior to entering elementary school. The last wave, Wave 4, began nursery school in the fall of 1965.

A. Instructional Program from 1962-65.

Waves 0, 1, 2 and 3 were exposed to an instructional method that has been described as "verbal bombardment." In this method the teacher maintained a steady stream of questions and comments to draw the child's attention to specific aspects of his environment. It was used when rewarding him and disciplining him, as well as when instructing him in academic pursuits. The complexity of the language increased as the child's verbal ability developed.

The cognitive lessons used in the academic curriculum attempted to structure learning by requiring the teachers to select certain thematic units for study, determine the objectives for the units, and then sequence the learning tasks needed to accomplish these objectives. Emphasis was placed on developing an intensive language environment, thinking skills, impulse control and task orientation.

The four preschool teachers jointly operated the morning program which was divided into two main instructional periods separated by a refreshment period.

The "early morning" instructional period was an hour in duration. It took place in the largest of the school's three rooms. Each teacher was stationed in one of the four "area teaching" divisions of the classroom: arts and crafts, housekeeping, pre-academic, block activities. During this period the children were free to select any one of the four activity centers. The child could participate or observe as long as he chose and move from one area to another. The teacher's lesson plans were structured to include a variety of activities which could easily be adapted to the individual children participating in her learning center.

The thematic units designed for use in these area teaching centers were systematically developed to emphasize the following cognitive processes: sensory perception; language development; memorization; concept development. (A description of specific lessons appears in the following section.)

The "late morning" period was more highly structured than the earlier period. The children were divided into two homogeneous groups, approximately 12 students per group, based on "cognitive ability." Two teachers worked with each of these groups, making the pupil:teacher ratio 6:1. The groups met for approximately 20 minutes in two small separate classrooms adjacent to the larger room used for the early morning activities. Instructional units were sequentially introduced by the two teachers, and the individual lessons within a unit were designed to teach a particular skill or concept which was felt to constitute the foundation for future learning and which was observed to be missing from the children's repertoire of behavior.

The two groups were programmed separately. The more advanced group undertook relatively long units involving language usage, refined auditory discrimination, and complex dramatic play. The less advanced group, composed mainly of the 3-year olds, spent time in basic skill training and simple pre-math concepts (e.g., geometric forms). (Again, specific descriptions of the activities appear in the next section.)

Field trips were taken to extend the learning activities of the area and group teaching experiences. In general, field trips were scheduled sequentially with emphasis on a single aspect. For example, a trip to a farm to see apple trees was followed by trips to a cider mill and to a grocery store to purchase cider and other apple products. Finally a cooking experience, such as the preparation of apple sauce, took place in the homemaking area.

These "real life" experiences were used by the teachers to develop language concepts, to suggest parallels between reality and representation in books, to foster occupational role identifications, to raise aspiration levels, and to develop appropriate social behaviors.

The purposes of the afternoon, home-based program, were: to involve the mother in the education of her child; to demonstrate the process of teaching; and, to tutor the child on a one-to-one basis. The home visits also offered an opportunity for the teacher to become more cognizant of the child's deficits, thereby enabling her to work more effectively with each child in the classroom.

Two types of afternoon sessions were conducted: cognitive skill training and field trips. The cognitive skills stressed in the afternoon sessions were: visual training (e.g., identifying objects, colors, forms, letters); fine-motor coordination necessary for writing (e.g., tracing dotted lines); auditory discrimination essential in learning to read (e.g., listening to records, responding to instructions, imitating and classifying sounds); pre-math training (e.g., counting silverware); and general science training (e.g., planting seeds, making Jell-O). The area of emphasis and the activities were varied to suit the individual child and home situation.

Individual field trips were extensions of the constant effort to reinforce concepts taught in the morning program. If the child appeared not to have grasped the significance of a group field trip, the teacher would return with the child to the site of the former visit to permit closer observation of the situation. The mother was always offered the opportunity to join them on these trips.

Monthly parent meetings held at the school on a community center offered the mothers and fathers an opportunity to exchange views about the program. The more interested parents did the recruiting along with the staff; in addition, they prepared the refreshments and assumed responsibility for planning the topics for discussion. The men and women met in separate groups, but whenever possible their programs were paralleled to facilitate discussions at home. A variety of programs was offered in an attempt to determine which types were more effective in stimulating interest. The mothers' meetings were chaired by the preschool teachers; the fathers; by a male social worker in the school system. There were no outside experts. Refreshments were available at no expense to the parents.

B. Instructional Program for 1965-66

Wave 4 was exposed to an instructional program which was much more highly structured than that of the previous years (1962-65). The new curriculum was influenced by the developmental theory of Piaget, and was mean to follow the sequence of growth stages he postulates. The preschool was to facilitate the transition from sensory-motor to conceptual intelligence, through an instructional program which promoted an understanding of symbolization and elementary types of relationships. Symbolization helps the child to move from concrete, sensory-motor intelligence to representational intelligence; elementary relationships include those between things and events.

The project staff made the following distinctions between a traditional nursery school and the Perry Preschool: (Weikart, 1967)

1. The materials and activities used were basically the same as in a traditional nursery school, but they were used in different ways and for different purposes.

2. The teaching goals of the preschool for disadvantaged children were not primarily to enrich and extend children's experience, but to enable them to acquire the basic cognitive skills that they had never developed.

3. Since the preschool had disadvantaged children for a very limited amount of time each day, and so much learning had to be done, every item in the room and every activity during the day was especially selected for its contribution to the learning process.

4. Since time was limited and the cognitive deficits were numerous, careful programming was essential so as not to skip important intermediate steps.

The terminal objective for the preschool program 1965-66 was essentially the same as that for the previous years: to foster a positive change in intellectual growth which would lead to academic success and social adjustment in the elementary grades. However, the interim objectives were explicitly defined in behavioral terms and set forth as follows (Weikart, 1967):

Cognitive Objectives

1. To understand and respond to temporal relations
    a. Beginning and end
    b. Ordering of events (before, after, first, if - then)
    c. Time periods containing different lengths of time (day, week)

2. To understand and respond to spatial relations
    a. Prepositions of position (on, under)
    b. Prepositions of direction (toward, from)
    c. Preporitions of distance (near)

    These goals are experienced in relation to the self and to objects.

3. To understand and use seriation
    a. Sizes to four (big, little)
    b. Quantities to four (many, few)
    c. Qualities to three (hard, soft)

4. To understand and use classification
    a. Conceptual (gross discriminations)
    b. Descriptive (size, shape, color)
    c. Relational (function)

Developmental Objectives

1. To develop levels of symbolization
    a. Real objects -- identifying and naming real objects (duck)
    b. Index
        1. Marks causally related to objects (foot prints)
        2. Object permanency
        3. Object constancy

    c. Representation
        1. Pictures (realistic--abstract) (recognize picture of a duck)
        2. Clay models -- drawings
        3. Motor encoding (squatting walk like a duck)

    d. Sign -- words (recognizing the word duck)

2. Operational levels
    a. Motor
        1. Child uses own body to experience concepts.
        2. Child operates on objects.
        3. Child uses objects to operate on other objects.

    b. Verbal
        1. Teacher provides verbal stimulus.
        2. Child relates what he is going to do before he does it.
        3. Child verbalizes while performing action.
        4. Child interprets what he has done after he has done it.
        5. Child can verbally evaluate his own work from memory.

3. Impulse control
    a. To help child develop longer attention span
    b. To assist child in planning and carrying out self-selected activities

Mental Health Objectives

1. Body image -- internal feelings about self
2. External -- feelings about others

Group Process (Socialization) Objectives

1. To help the child develop an awareness of group functioning:
    a. An understanding of his rights in and contributions to the group
    b. An understanding of the rights and contributions of other members of the group (adults and peers).

The daily routine for the preschool was similar for all 6 years of the program with the exception of the four new activities checked in the sample schedule outlined below.

8:45 - 9:00	Arrival
✓9:00 - 9:15	Planning meeting
9:15 - 9:45	Area teaching
✓9:45 - 10:00	Evaluation
10:00 - 10:15	Clean-up
10:15 - 10:25	Juice time
10:25 - 10:45	Small group teaching
✓10:45 - 11:00	Activity time
✓11:00 - 11:15	Circle time
11:15	Dismissal

The four new time blocks were added to further increase the opportunity for verbal interaction among the teachers and students and to reinforce the cognitive lessons presented during area and small group teaching. The following paragraphs describe more explicitly the types of activities pursued during each block of time (Weikart, 1967):

Arrival

Children hung up own coats and immediately went to area designated for planning time (temporal relations).

Planning

The school routine was reinforced during this period of time (temporal relations). In addition, the teachers and group planned activities which would take place during work time (Area teaching).

Area teaching

The children worked in their chosen area for a reasonable length of time (temporal relations). During this period, the teachers were constantly interacting with the children to attain certain predetermined goals which dealt with temporal or spatial relationships, seriation, or classification. Examples of each area include:

1. temporal -- started and finished an art activity
2. spatial -- motor body movement, i.e., up-down
3. seriation -- used large hollow blocks for making a big house and a little house
4. classification -- after making a house from the blocks, teacher and child determined items which were needed in the house; i.e., telephone, chairs.

Evaluation

During this period of time, the children were encouraged to discuss the activities in which they were involved during work time. They were also encouraged to evaluate themselves in relation to whether they felt that they worked well or could have worked better (body concept).

Clean-up

This period was used to reinforce all predetermined goals in the area of temporal relations, spatial relations, seriation, and/or classification; examples include:

1. temporal - signal designating the end of clean-up time
2. spatial - The car goes on this shelf.
3. serialization - The big blocks go here; the little blocks go there
4. classification - cabinet contains all blocks; another contains all cars; another contains all the puzzles, etc.

Juice time

This period used for serving refreshments also afforded an opportunity for informal language development. The teachers would label objects (e.g., cup, juice), name colors, name children and encourage the children to use certain language patterns associated with the social graces.

Small group time

This time was used for directed teaching of small groups. Each teacher preplanned for her group. Again the four areas (temporal, spatial, seriation and classification) were taught. Activities during this time included one of the following:

1. temporal - who was ready first, second, last
2. spatial - Everybody put your hands under the table, on the table, over the table.
3. serialization - use of big - little cookies, cups, etc.
4. classification - sorting pictures of animals and pictures of items which are not animals into two groups

Activity time

The specific activity was planned for either indoors or outdoors. A typical activity involved the use of spatial concepts such as: sliding "up and down" the slide, "under" the ladder, etc.

Rhythms were also used during this time. A temporal concept which might have been taught is: play your instruments "at the same time, now."

Circle time

This part of the day was used for reviewing the morning's activities and for recalling the routine of the day (temporal relations). In addition, the teacher selected a book which would reinforce a particular concept which was taught, e.g., book on animals to reinforce classification.

Dismissal

The children were usually dismissed in a particular manner such as: walk like a duck, etc. While the children were putting on their coats, body image and relational classification were sometimes reinforced, e.g., hat on your head, glove on your hand, etc.

The afternoon home-based program and weekly parent meetings were conducted in the same manner as they had been in previous years.

Methodology: Specific

The descriptions included in this section are drawn from activities which took place during a typical day at the Perry Preschool. Examples A and B are representative of the instructional program from 1962-65; example C is representative of the program as it existed from 1965-66.

A. Area Teaching

One 2-week unit held in the housekeeping corner focused on the theme of "milk and milk products". The goals of the unit were defined, but not the goals of individual lessons (Weikart, 1967).

Purposes:

1. To teach about milk -- where it comes from, various milk products, and why it is important.
2. To encourage careful observation of different states (liquid, powder, cheeses, whipped cream, pudding consistency, etc.).
3. To feel, smell, taste, and look.

Activities:

1. Have whole milk, powdered milk, and evaporated milk, and see, taste, smell, feel, and talk about differences. Learn the words "powder" and "liquid". Make milk with powder and then with evaporated milk.
2. Make milk shakes.
3. Make whipped cream.
4. Make hot milk and honey.
5. Buy milk products and eat (cheese, sour cream, ice cream, etc.)
6. Put up and talk about pictures of many baby animals drinking milk. Talk about why milk is important.
7. Cut out pictures of milk products from magazines and paste. Learn names.
8. Take a trip to the dairy.
9. Dramatic play showing a large picture of a cow.

10. Bring in a coconut, taste its "milk", compare it with cow's milk.
11. Make vanilla pudding with milk. Have children experiment with making pudding thick or thin.

B. Small-Group Teaching

One unit which introduced geometric shapes to the younger children was divided into several lessons. The goals of the unit _and_ the goals of each lesson were defined (Weikart, 1967).

Unit:

Geometric Forms No. 3 (for 3-year-olds)

Purpose:

To continue teaching geometric shapes
To introduce the words "in" and "out"

Activity:

Each child was given a box (gift box) containing cardboard squares, circles, and triangles. The teacher held up a shape and the child was to find a shape to match. When the children found a shape, they took it out of their boxes, and laid it in the middle of the table. The game was then reversed. The teacher held up a shape while the children looked for the same shape to put in their boxes.

During the two most recent years of the program (1965-67) the teaching staff formulated objectives for the week, the day and the lesson. The goals of each separate activity during a single day represented interim steps toward achieving the terminal objective(s).

C. The following format represents part of a daily lesson plan. It may be noted that each activity in the daily routine was used to reinforce the interim objectives.

Terminal Objective: to increase each child's understanding of spatial relations

Interim Objective: to focus on prepositions concerning position

Level of Symbolization: Object-Index

Procedure: Review and extend previous work in this area

Motor Activities	Verbal Activities
1. Area Teaching - use of doll corner and equipment for emphasizing positions	1. Child verbalizes placement of doll, e.g., "The doll is in the high chair".

Evaluation

A. Measures of Achievement

Three measures of intelligence were used consistently in this program to assess progress: the Stanford-Binet, the Peabody Picture Vocabulary Test (PPVT), and the Leiter International Performance Scale. Each was used in the fall of the entering year for each wave, and in the spring of each year prekindergarten through third-grade, again for each wave. Differences favoring the experimental groups in the early years were usually evident from the scores when the means for all five waves were combined, but by second-grade these differences had disappeared. The analysis is tentative because as is shown in Table 9, later waves had not yet reached the grades.

Table 9

STATUS OF WAVES 0 THROUGH 4 IN THE ANALYSIS OF
THE PERRY PRESCHOOL PROGRAM, THROUGH SPRING 1967

Wave	1962-63	1963-64	1964-65	1965-66	1966-67
0	PK	K	G1	G2	G3
1		PK	K	G1	G2
2			PK	K	G1
3				PK	K
4					PK

The results of testing the waves with the Illinois Test of Psycholinguistic Abilities are similar to those for the three intelligence tests.

Academic achievement tests were also used in the evaluation, usually from first grade onwards. The results for all the waves combined, in grades one through three, on the California Achievement Tests, showed that the experimentals significantly outperformed the controls in each grade (at the 5 percent level). Similar results were obtained from use of the Gates Reading Tests. Again, the analysis is tentative because later waves had not reached the grades.

Tables 10 and 11 contain the means for the three intelligence tests and the California Achievement Test battery, respectively, obtained from the five waves combined.

Table 10

STANFORD-BINET, PPVT, AND LEITER IQ SCORES FOR WAVES 0 THROUGH 4 IN THE PERRY PRE-SCHOOL PROGRAM, PREKINDERGARTEN THROUGH THIRD GRADE

	Fall Entering Year	Spring Entering Year	Spring Second Year	Spring Kindergarten	Spring First Grade	Spring Second Grade	Spring Third Grade
Stanford-Binet							
Experimental	79.6	95.9	94.7	90.1	91.5	87.3	89.2
Control	78.5	83.3	83.5	84.9	83.2	96.1	88.3
PPVT							
Experimental	67.1	74.5	81.4	78.3	83.5	81.8	77.2
Control	62.2	63.7	62.9	73.2	77.9	81.0	80.5
Leiter							
Experimental	70.1	97.6	89.7	85.1	86.6	87.9	90.4
Control	59.0	72.0	77.9	81.9	85.8	87.3	85.3

Table 11

CALIFORNIA ACHIEVEMENT TEST BATTERY SCORES FOR
WAVES 0 THROUGH 3 IN THE PERRY PRESCHOOL PROGRAM,
FIRST THROUGH THIRD GRADE

	Spring First Grade	Spring Second Grade	Spring Third Grade
California Achievement Test Battery			
Experimental	91.5	143.2	191.2
Control	70.7	115.3	114.9

Certain factors on the Ypsilanti Rating Scale also referred to academic achievement. This scale, developed for the program, was used each spring for kindergarten through third grade in Waves 0 through 4. In almost all instances ratings on the scale for experimentals were higher than for controls.

B. Other Evaluation Indices

Non-academic achievement factors on the Ypsilanti Rating Scale again yielded ratings showing the experimentals higher than the controls. A pupil behavior inventory was used, covering classroom conduct, academic motivation and performance, socio-emotional state, teacher dependence and personal behavior. Again, with few exceptions, experimental groups gained higher ratings than controls.

C. Modifications and Suggestions

No major modifications are being made to the basic program, but the experimental design has been changed radically. Now a three-way comparison study is being conducted, to compare Wave 5 with a conventional preschool group, and also with a group being instructed according to the pattern of the Academic Preschool of Champaign, Illinois (the Bereiter-Engelmann Project), described elsewhere in this report.

Budget (annual)

1	Director	Half time
1	Curriculum supervisor	Full-time
1	Program Supervisor	Full-time
4	Teachers	Full-time

Rental, Utilities, Custodial	$4,000
Travel (Professional)	$500
Transportation	$8,000
Books and Materials	$8 per child
Other	$500

The total cost of the program during the most recent year (1966-67) for 48 children was approximately $51,000

Quoted Sources

Weikart, D. P. *Preschool intervention: a preliminary report of the Perry Preschool Project*. Ann Arbor, Michigan: Campus Publishers, 1967.

Weikart, D.P. Preliminary results from a longitudinal study of disadvantaged preschool children. Ypsilanti, Michigan: Ypsilanti Public Schools, 1967. (Mimeographed)

Other Sources Not Quoted

Hodges, W. L. and Spicker, H. H. The effects of preschool experiences on culturally deprived children. *The Journal of the National Association for the Education of Young Children*. October 1967.

Weikart, D. P. and Wiegerink, R. *Initial results of a comparative preschool curriculum project*. Ypsilanti, Michigan: Ypsilanti Public Schools, January 30, 1968.

For More Information

David P. Weikart
Director
Perry Preschool Project
Ypsilanti Public Schools
Ypsilanti, Michigan

THE DIAGNOSTICALLY BASED CURRICULUM

IN BLOOMINGTON, INDIANA

Introduction

The purpose of this study was to develop and evaluate a diagnostically based curriculum for disadvantaged preschool children. The diagnosis attempted to identify the child's learning deficits in language, concept, and fine motor development so that specific remediation procedures could be applied individually. With the exception of specifically developed diagnostic language and fine motor lessons, the experimental curriculum included many of the kinds of activities found in regular preschool and kindergarten programs. However, activities such as music, art, free play, and story-telling were not used as ends in themselves, but as vehicles for the development and remediation of specific cognitive, psycho-motor, and social behaviors.

The student population consisted of 139 Appalachian white and four Negro children from families of the lowest socio-economic class as determined by the Warner-Meeker-Els Index of Status Characteristics. From those children who met the socio-economic criteria, only 5-year old children who scored between 50-85 on the 1960 Stanford-Binet L-M Intelligence Scale were selected.

Three studies with similar design were completed in 3 consecutive years (1964-67) preceded by a 1-semester pilot study. A longitudinal study of the children as they proceeded through various public schools was also conducted. In each of the three studies approximately 15 children were placed in either an Experimental Preschool (EPS), Kindergarten Contrast (KC), or At Home Contrast (AHC) group. The EPS children received the diagnostic treatment; the KC children received a traditional kindergarten treatment; the AHC received no treatment. Although the original intent was to replicate the basic study twice to accumulate larger numbers of subjects within each treatment, the three studies were not precise replications. The diagnostically developed curriculum was modified each successive year by incorporating experiences gained from the previous years.

The diagnoses were made on the basis of Stanford-Binet scores and direct observations of teachers and project staff. Measurement of gains in language development, IQ, and motor development were made with five standardized tests. Results for intelligence and language development favored the EPS group. Results in Fine and Total Motor skill equally favored the EPS and KC groups over continued residence in the home.

Personnel

The task of developing and implementing the curriculum for the EPS groups was the responsibility of a continuously functioning curriculum committee which included the following project staff.

A. Principal Investigators. (Three in number, each devoting one-third time for 3 years to the project; Ph.D.'s; one was specialized in the clinical aspects of the psychology of child development, the second was a school psychologist, and the third was an expert in special education.)

These three people were responsible for planning the curriculum and designing the project and its evaluation. The third collaborated with the reading specialist to prepare the diagnostically based curriculum.

B. Project Coordinator. (Full-time; doctoral student in clinical and school psychology minoring in special education.)

He scheduled the testing of all experimental and control pupils; assigned the graduate students to the tasks of collecting curriculum materials, test data and observation data; and generally supervised the total operation of the program.

C. Reading Specialist. (Part-time, associate professor of education; M.A.)

The reading specialist assisted in the preparation of the diagnostically based curriculum.

D. Teachers (EPS). (One each year; full-time; well trained in special education, but little or no experience; received inservice training.)

The teacher assisted in the development of classroom procedures and lesson plans; she also evaluated progress in all areas.

E. Teacher Aides. (Full-time; people with degrees, but not usually in the field of education; males.)

These assistants were employed only in the second- and third-year studies. They were introduced chiefly to alleviate the disruptive atmosphere which was formerly brought on by the novelty of male figures when they were used for testings.

F. Graduate Assistants. (Part-time; advanced graduate students in educational psychology, school psychology, and special education training programs; trained in testing, observation, and interviewing techniques.)

The graduate assistants administered the pre- and posttests.

Available to the curriculum committee on a consultant basis were the following additional staff: project social worker, speech therapists, optometrists, physicians, and curriculum specialists in art, music, and physical education.

The committee's working schedule included weekly meetings, individually arranged weekly observations of the EPS class, less frequent observations of the KC class, and special training sessions with the experimental (EPS) teacher.

Methodology: General

The program was conducted in small communities (population 10,000-40,000) in Southern Indiana, where the population meeting the criteria for inclusion in the project consisted primarily of Appalachian white 5-year olds. Intervention was confined to the school day (9:00 a.m. to 1:00 p.m.), and contact with parents was limited to that necessary to locate the children, enlist them in the study, and maintain attendance. No effort was made to modify the schools to which the children went for first grade following their project year.

Three studies with similar design were completed in 3 consecutive years. Approximately 45 children were involved each year and were assigned in groups of 15 to one of the following three study sections:

EPS - Experimental Preschool
KC - Kindergarten Contrast
AHC - At Home Contrast Group

[These abbreviations will be used throughout the text to identify the groups; a subscript number will appear with these initials to distinguish one year's study from another (i.e., EPS_1, EPS_2).]

The experimental groups (EPS) received a structural curriculum designed to remedy specific diagnosed deficits of the individual child in areas of language development, fine motor coordination, concept formation, and socialization. The kindergarten groups (KC) received a traditional kindergarten program. The At Home Contrast Groups (AHC) received only the pre- and posttesting.

The EPS program was designed to effect greater gains in the cognitive and affective areas cited in the preceding paragraph than a more traditional kindergarten approach or no kindergarten experience at all. It was hypothesized that these gains would then be maintained during the elementary grades.

Based on the assumption that intelligence can be modified by experience, the project staff set forth the following objective for the EPS program (Hodges, McCandless, Spicker, 1967):

1. Identify and where necessary develop or adapt techniques and instruments useful in preschool diagnosis and that lead to productive curriculum practices.

2. Obtain data concerning the effective use of selected diagnostic tools in curriculum development for children with specified strengths and weaknesses in certain cognitive and affective areas related to school achievement and adjustment.

3. Develop and refine curriculum strategies for 5-year old psycho-socially deprived children for purposes of preventing future mental and educational retardation.

4. Evaluate the effectiveness of the diagnostically based curriculum strategies in terms of the purposes stated in objective 3 above.

A. Assessment and Diagnostic Techniques

Tables 12 and 13 list all measures used in this project, including medical, cognitive, and affective assessments. Some techniques were used for screening pupils, some for pre- and posttest measurements of change over the period of intervention, some for diagnostic curriculum purposes, some for follow-up information, and others for a combination of these purposes. Table 13 delineates the instruments used, their purposes, and the groups to which they were applied.

No children were included in the project for whom there were disabilities other than poor prognosis for school achievement associated with psycho-social deprivation. However, for those screened and identified as having medical and physical anomalies, corrections were made when necessary and possible.

B. Examiner Selection and Training

Pre- and posttesting stressed objectivity of approach to all children, development of adequate rapport, and maintenance of constant testing conditions.

The graduate students who served as examiners were considered competent in administering individual and group tests, and were trained in behavioral observation and interviewing techniques. Specialists such as speech therapists, optometrists, and psychiatrists were drawn into the project as needed.

Follow-up criterion measures were obtained by teachers and examiners who did not know which children were in experimental or control groups and who also were naive with regard to the hypothesized outcome of the study.

C. Program Scheduling

The curriculum committee worked closely with the class teacher in planning an effective distribution of activities in the program. These class programs were flexible, but the basic principles of using times of the day when the children were most alert for the most formalized instruction and of providing a balance between quiet avtivities and action situations were always observed. Also, even though

Table 12

INSTRUMENTS OF ASSESSMENT DIAGNOSTICALLY BASED CURRICULUM PROJECT

Medical-Physical	Pre- and Posttest Measures of Cognition	Achievement Measures	Affective Measures
Optometric Psychiatric Neuro-logical Pediatric	[a]Stanford-Binet, Form L-M Peabody Picture Vocabulary Test Raven's Progressive Matrices Goodenough Draw-a-Man [a]Illinois Test of Psycho-linguistic Abilities Lincoln-Oseretsky Motor Development Scale San Francisco Inventory of Communicative Effectiveness Caldwell Preschool Inventory [a]Frostig Test of Visual Perception Optometric Evaluation Articulation [a]Columbia Mental Maturity Scale Demographic Data 1. Warner-Meeker-Eell's *Index of Status Characteristics* 2. Wolf Interview Form	Eight-Point Reading Scale Teacher Paired Comparison on: a. Number Skills b. Reading Skills California Achievement Test School Report Card	Teacher Paired Comparison on: a. Personal-social Adjustment Sociometric Task Involve-ment Scale

---

[a] These instruments were used to formulate diagnostic curriculum plans as well as to provide measures of change.

[Source: Table 2, p. 21, Hodges, McCandless, Spicker (1967)]

Table 13

TEST SCHEDULE FOR STUDIES I, II, AND III
DIAGNOSTICALLY BASED CURRICULUM PROJECT

Instrument	Time and Study					
	Fall 1964	Spring 1965	Fall 1965	Spring 1966	Fall 1966	Spring 1967
1. Revised Stanford-Binet, L-M	I[a]	I	II[b]	I, II	III[c]	I, II, III
2. Peabody Picture Vocabulary Test	I	I	II	I, II	III	I, II, III
3. Illinois Test of Psycho-linguistic Abilities	I	I		I	III	I, II, III
4. Columbia Mental Maturity	I	I	II	II	III	I, II, III
5. Frostig Developmental Tests of Visual Perception	I	I				
6. Raven's Progressive Matrices (Colored)	I	I				
7. Goodenough Draw-a-Man	I	I				
8. Caldwell Preschool Inventory			II	II	III	III
9. Reverse PPVT			II	II	III	III
10. Picture Language Sample			II	II		
11. San Francisco Inventory of Communication Effectiveness					III	III
12. Task Involvement Scale			II	II	III	III
13. Report Cards				I		I, II
14. Teacher Paired-Comparison-Personal-Social				I		I, II
15. Teacher Paired Comparison-Number Concepts				I		II
16. Teacher Paired Comparison-Reading				I		II
17. Eight-Point Reading Scale				I		II

[a] I=Study I (1964-65) [b] II=Study II (1965-66) [c] III=Study III (1966-67)

[Source: Table 3, p. 22, Hodges, McCandless, Spicker (1967)]

a period was designated as snack time, lunch time, free play, or recess time and so perceived by the children, these periods were thoughtfully used by the teacher (and, after the first year, by teacher aides) as valuable opportunities for ancillary activities relating to the main objective for the day's specific lessons.

A representative sample of a daily class schedule follows: Class Daily Schedule - sample taken from the third-year experimental group.

9:00-9:30	Formal Language Lesson
9:30-9:45	Directed Activity (practice following language lesson - self-help activity, working with puzzles, coloring work)
9:45-10:00	Snack Time (placed early in the morning because many of the children came without breakfast)
10:00-10:20	Story of the Week
10:20-10:40	Gross Motor Activities
10:40-11:00	Formal Motor Lessons (fine motor activities)
11:00-11:10	Sharing Time (ancillary language)
11:10-11:30	Directed Play (purposeful participation and leading on part of teachers)
11:30-11:45	Music (ancillary language)
11:45-12:00	Clean up (getting ready for lunch)
12:00-1:00	Lunch (wind-up of the day's activities)

(Hodges, McCandless, Spicker, 1967)

D. Curriculum and Teacher Training

The curriculum was designed to accomplish the two primary goals of promoting personal-social adjustment to group learning experiences and cognitive development within a formal teaching-learning structure. When the first goal was approximated, the second was attempted since it was felt that social balance was a prerequisite to cognitive achievement.

Teachers were trained to be child-oriented, not content-oriented; to utilize each teachable moment; to demonstrate and not just verbally explain concepts to the children; and to develop concrete reinforcements for individual children.

To assist teachers in focussing attention on the child rather than the content, the following procedure was used by the curriculum committee when designing a lesson: review the developmental sequence of the skill to be taught; identify the performance level of each child; then structure the appropriate learning experiences.

The techniques employed by the committee when training the teachers included verbal explanations, directed observations of the children, and role playing by the teacher with certain members of the curriculum committee.

For example, appropriate use of concrete rewards for specific responses of the children had to be perceptively used and required ingenuity on the part of the teacher. The process was demonstrated by a staff member, role-played by the teacher, and then used in the classroom. Staff observations were made to insure that the rewards were being properly administered.

Two strategies were used to improve the teacher's diagnostic evaluation of the children's performance. One approach was the use of a chart containing the children's names, the major curriculum goals, and a check-list containing an evaluative scale describing the degree of deficiency in each area of behavior. These charts were checked once a week with the curriculum committee. These observation charts are shown in Table 14. Another approach was including on every typed lesson plan a space for recording individual and group responses to that particular lesson. (See Table 15.)

To summarize, through the interaction of the curriculum committee with the teacher, it was possible to implement the diagnostic curricula with varying degrees of success. The weekly sessions included diagnostic study, formulating specific lesson plans, and evaluation of progress. The techniques of role-playing and demonstration proved to be valuable approaches in improving the teacher's effectiveness (Hodges, McCandless, Spicker, 1967).

Table 14

WEEKLY DIAGNOSTIC RATING SCALE
DIAGNOSTICALLY BASED CURRICULUM PROJECT

Cultural Deprivation Project-Rating Scale for Children to be used in conjunction with the weekly lesson plans.

Rating	Category Description
1	No specific work needed in this area - the child is as competent as can be expected.
2	Some attention required; work in this area is not crucial for this child; exercises on relevant tasks should be given when time permits.
3	Considerable attention required; exercises on relevant tasks should be given as often as possible.
4	Major deficiency; daily attention to this area.
5	Child not ready for work in this area; exercises would be inappropriate for child at this time.

Name of Child	Perception	Manipulation	Socialization	Language	Cognition	Motivation

[Source: Appendix A, p. 153, Hodges, McCandless, Spicker (1967)]

Table 15

LESSON PLAN RATING FORM
DIAGNOSTICALLY BASED CURRICULUM PROJECT

Rating

1. Interest of children in activity.

Poor		Good		Excellent
1	2	3	4	5

2. Stimulation of children's language.

Poor		Good		Excellent
1	2	3	4	5

3. Stimulation of children's thinking.

Poor		Good		Excellent
1	2	3	4	5

4. Difficulty level of activity.

Very Easy		Adequate		Very Hard
1	2	3	4	5

[Source: Appendix B, p. 154, Hodges, McCandless, Spicker (1967)]

E. Social and Emotional Development

For each year of the investigation, a 6-week period at the beginning of the school year - the socialization phase - was set aside for the children to learn to accommodate to and cope with their teachers, testers, observers, and themselves. Overt affection manifestations were gradually introduced. Male assistant teachers were employed for the second- and third-year studies in order to alleviate the disruptive atmosphere which was formerly brought on by the novelty of male figures when they appeared for testing or observing.

F. Language Development

The project staff, assuming that concept formation and reading readiness could not occur efficiently without adequate oral language, chose as one of its major cognitive goals the development of richer and more effective language.

Two basic developmental strategies were employed throughout the investigation: a daily formal language period consisting of structured diagnostic language lessons; and a series of ancillary language activities designed to reinforce the lesson objectives and provide opportunities for transfer of language skills. These two strategies will be described more fully in the Specific Methodology of this report.

G. Motor Development

The rationale for including structured motor development in the curriculum was that fine motor coordination is essential to writing activities; and gross motor skills are necessary for socialization activities. The daily formal motor development lesson was taught by a physical education graduate student. Series of ancillary motor activities designed to reinforce the motor lessons were also incorporated into the daily program. The formal motor lessons emphasized fine motor development; in addition, a daily physical education period gave the EPS students opportunity for gross motor development.

Methodology: Specific Examples

The following represent descriptions of specific activities which better illustrate how the curriculum was implemented (Hodges, McCandless, Spicker, 1967).

A. Social Development

> Firmly, politely, and consistently during the first part of each school year, the children were taught such things as: to take turns, to call their teacher and her aide by

their names rather than "Teacher," to brush their teeth after meals, to clean themselves and wash their hands after toileting; to answer questions in complete sentences; to use "Please" and "Thank you." Discipline for both the EOS and KC groups was mild reprimand or "Time out." Physical discipline, other than gentle restraint for an occasional out-of-control child, was never used.

More for the EPS than the KC groups, tangible rewards were used copiously during the early part of the school year. These were always accompanied by verbal rewards such as approbation, praise, expressions of appreciation, and, when the children came to the point where they welcomed physical contact, physical gestures of reassurance and affection. This was a loose application of "behavior shaping" and "conditioning to secondary reinforcement" theory and practice. The demand for tangible rewards diminished to almost nothing by the end of the intervention year.

The investigators and others associated with the study made regular observations of the EPS groups. In this sense, the development curriculum was more diagnostically based for the EPS than for the KC groups.

Training was given in such behaviors as listening, planning, concentration, delay of gratification, and working for the satisfaction of working. Appropriate patterns of reinforcement for such behaviors were worked out for each child, for special subgroups, and for the total group. The following illustration demonstrates group training for listening, concentration, and delay of gratification: Initial "impositions" of silence were literally momentary. To develop group-attention behavior, the teacher would say, "Let us see if you can all be quiet for one second." A tangible reward (sometimes candy but more often one of the niblet cereal products available on the market) was then dispensed to all children in the group who had achieved the goal. The silence time was slowly but consistently made longer and, within a few weeks, the children were generally quiet and receptive when the teacher judged it necessary for purposes of instruction.

B. Self-Concept Development

Colored photographs of all children were taken early in the school year and attractively mounted. The teacher then made sure that each child could identify not only himself, but every other child in the group. The ability to match a picture with a given child would then be followed with learning the first name of each person in the room. A sizable proportion of the children did not recognize their own pictures. They often showed a mixture of delight and dismay with their pictured image.

A full length mirror was introduced and maintained throughout the school year to help the children develop their own body concepts and to assist them with grooming. A mirror was also introduced as a part of a "dressing table," at which the children brushed teeth and hair, or manipulated collars and other external aspects of their dress.

"Guess Who" was a frequent game: "I am thinking of a girl with brown hair and blue eyes who is wearing a pink dress." As a general rule, the children were far more accurate in recognizing others during this game than they were in self-recognition, although after a few weeks of the game all children mastered self- as well as other-references.

Further formal instruction in this area consisted in drawing silhouettes of themselves and others, recognition of these silhouettes, and recognition of silhouettes with parts missing. Considerable experience with small figure drawing was also given. A "Muscle Club" was developed for the boys, which served the combined functions of "brotherhood," recreation, prestige, outlet for energy, development of gross and certain fine motor skills, experience in following rules, and self-inhibiting behavior. At first restricted to boys, it was later found that this Club appealed as well to some of the girls, who were welcomed into its ranks. It also served as a valuable ancillary language activity.

A general strategy used throughout the EPS classes was that of regular reviews with each child of concrete examples of his work. During these reviews the objective was to help the child see the kinds of improvement he had made and to reinforce his efforts directed towards the achievement of more sophisticated techniques and products.

C. Formal Language Development Program

1. Diagnosis

By the time their kindergarten experiences had begun, a majority of the children had learned a restricted language code by means of which they were able to communicate their needs and understand simple verbal instructions. However, they were, in general, unable to cope with elaborative language. For example, they were typically able to give the generic label "chair," to a rocking chair, easy chair, or straight backed chair; but could not provide the differentiating labels, "rocking," "easy," or "straight-backed." In addition, they could not compare or contrast such chairs with respect to size, shape, color, texture, or multiple function. This elaborative language deficit was further demonstrated by their performance on the Binet. The project children did least well on those items which involved somewhat prolonged speech sequences, and best on those items in which the verbal stem and response were short.

A related problem was discovered by an item analysis of the initial Peabody Picture Vocabulary Test (PPVT) protocols of the total study sample. A rank order correlation of .71 between the order of difficulty for the entire study sample of 5-year olds and the placement of these items in the test was obtained. Gerunds such as yawning, tying, picking, building, pouring, sewing, catching, were much more difficult for the project children than for the standarization sample. Labels for uncommon objects or things seldom encountered in their familiar environments, such as dial, caboose, peacock, and eagle were also more difficult for the project children.

Because it was assumed that elaborative, representational language is necessary for the development of symbolic thought, verbal mediation, and later school success, the language lessons and ancillary language activities were designed to elicit elaborative language and to reinforce its use whenever possible.

2. Remediation

Language lesson development evolved gradually over the 3-year period as the project staff continuously utilized the feedback from both test results and classroom observations. For this reason the formal language lesson is perhaps the component which varied most from year to year in its implementation. Since achievement test results for each study indicate that all the experimental language approaches produced significant gains in favor of the EPS group, this report will attempt to describe each study's approach and the rationale behind it.

The objectives for language development in each study remained the same; only the vehicle for realizing them changed.

These goals were as follows:

1. Develop each child's elaborative language.
2. Build upon each child's level of language skill as diagnosed by the Illinois Test of Psycho-linguistic Abilities (ITPA)
3. Program the lessons for complexity according to the development shown by the children as judged by the teachers.

Study I:

During the first month of Study I the children were pretested using the ITPA. The results from these tests were then used by a language consultant to diagnose the children's learning deficits and ultimately to design 68 language lessons for the EPS classroom teacher. For this reason, structured lessons were not available until the second semester; however, the ancillary language activities described later were employed by the EPS teacher.

Inspection of the individual profiles obtained from the ITPA results and observations of classroom behavior provided a logical basis for dividing the children into two groups of approximately eight children each for formal instruction. The first group was characterized as "high-vocal" (i.e., they monopolized the conversation during group work); the second group was characterized as "low-vocal" (i.e., they were passive participants in group work).

The low-vocal group received an instructional core that stressed expressive (encoding) aspects of psycho-linguistic skills. The high-vocal group received lessons requiring association and attention-concentration skills. An attempt was made to individualize the instruction by providing specific directions for each pupil within the lesson.

Three methods for developing elaborative language were incorporated in the language lessons: response elaboration, verbal definition, and verbal feedback. Two methods were used to stimulate response elaboration. The first involved the labeling activities present in many of the lessons that focussed on expressive language. The method included three steps. In Step 1, the children labeled or named the object. At this level, a child was required only to provide the name. Step 2 required him to improve the quality of his response by identifying the salient features of the object that he was labeling. In Step 3, he discriminated vocally between similar objects on the basis of structural or functional characteristics, and categorized apparently dissimilar objects according to some common feature.

The second method for developing response elaboration dealt with the length and completeness of verbal responses. Through feedback, direct questions, and supplying a model response, the teacher attempted to build from one-word responses and sentence fragments, to complete sentences. This procedure was also followed for tasks that required a visual-motor response to complete a picture story (Hodges, McCandless, Spicker, 1967).

Verbal definition was incorporated in all lessons to insure that the child understood the meaning of what he was witnessing and its relationship to other things.

Two forms of verbal feedback were used. The first was to give a modified feedback of the child's response. Second, corrective feedback as employed here provided the children with a model of an appropriate response; but at the same time avoided a negative statement in identifying the incorrect response. For example, if a child labeled a cow as a "Moo moo," the teacher responded, "Yes, that is a cow, and cows say Moo, moo" (Hodges, McCandles, Spicker, 1967).

Study II:

The Study II language program differed in certain major ways from that of Study I: 1) A reservoir of formal and informal experiences with children of this socio-cultural-intellectual level had accumulated. 2) The investigators believed the previous year's lessons had been too fragmentary in that they lacked continuity from one lesson to another or from formal lessons to ancillary activities occurring during the remainder of a school day. (In Study II, continuity was better attained by embodying the lessons in units that related to other on-going class activities.) 3) In all probability, the language lessons of Study I may not have been sufficiently based on the children's previous experiences. (In Study II, the authors tried to introduce the new by using and consolidating the old and familiar.)

Otherwise, the basic principles were much the same as described for Study I. Experimental children in Study II were given almost twice as many formal language lessons as the Study I children. These lessons began as soon as the socialization period was complete (about 6 weeks after the children entered school).

The beginning of each lesson was used to check what was known by the children and to consolidate previous gains made by them. Old words and concepts were related to new ones, which were added in a context made partially familiar by including in it a majority of familiar words and concepts. Time orientation was also provided by review and transition activities. Discriminations and generalizations were interwoven with games and familiar objects. The teacher and assistant teacher (aide) served as models and reinforcers.

The following description illustrates how the general principles were applied in Study II as well as some of the problems.

Following a 4-day unit on farm animals, a transition from that unit to a living room unit was made in the following manner. The lesson began with a review of the earlier description of a dog. Next, pictures of a house and barn were shown and the children were asked to identify them and to decide which one the dog would like to live in. They were then asked why the dog would like to live there. Next, they pretended that they were visiting in a house, discussing how they would go about finding whether there was anyone at home. When they knocked on the door, the teacher invited them in and they sat down in the living room. At this time, the high group discussed the furniture found in a living room.

It required 2 days to complete the next lesson. On the first day, entering the house and going into the living room were reviewed. "Living room" was a new concept for all the children, and the closest they could come to the concept was "front room." During the rest of this language session, various pieces of furniture were named and described. The description the first day was so complete that the group did not get around to all the common types of living room furniture, so the topic was continued into the second day. The high group remembered the word "cushion" from the previous day, but the teacher had again to supply the term "lamp-shade." After the first description, the objects were again presented, and function was asked for as well as description. Neither the high nor the low group had difficulty with the function of the pieces of furniture.

The next lesson dealt principally with the mock TV and the story of the Gingerbread Boy. This lesson began with a review of names and descriptions of the various pieces of furniture. The TV was the last item named, and the teacher then held up the mock TV. The low group did not recognize it as a TV until it was "turned on," but the high group recognized it at once. After the TV was "turned on," the teacher placed the first picture of the story in the mock TV and sat in silence. The children were asked what was missing from the TV; only the children in the high vocal group correctly indicated that it needed sound. The children were told that they would have to supply the sound by telling a story about the pictures shown in the TV. The story need not have been the actual story of the week, but in this instance, it was. They had no trouble with this new way of story-telling, and seemed to enjoy it keenly. It fitted well into the previous farm unit, since a horse and cow were among the characters.

The next lesson attempted to teach similarities and differences among different types of chairs. When the children came into the group for the lesson, there was a different type of chair for each child. The first thing they were asked was to name what they were sitting in. Then they stood up and looked carefully at their own chairs and those of their neighbors. Both groups immediately recognized that the chairs were all different. They were then led into a discussion of how the chairs were alike,

> and again all children in both groups knew that the chairs all had four legs, a back, and a seat. Each child was then asked to bring his chair to the front of the group and describe it to the rest of the children. The high group managed this well, and needed to be supplied with only the words "metal" and "wood." The majority of the low group, however, had to be coached with leading questions. Interest was good for both groups for this lesson, although it involved too much movement for the low group and the children became distracted. On the second day of the lesson, the chair game was played. This is a memory game in which the children all face the wall while one of the chairs is placed in the center of the circle. They are to tell both whose chair it is and describe how they were able to tell. Interest was good in the high but poor in the low group, again because of their easy distractibility and the amount of movement involved in the game. In the high group, the children verbalized rather well how they knew the chair belonged to a given child, although they needed help with fine discriminations. The low group typically said the chair belonged to X because it was the chair he was sitting on. The high group finished the game first, and the children were given pictures of chairs to hold and described to the group. They gave good descriptions of the chairs, but interest began to lag near the end of the lesson (Hodges, McCandless, Spicker, 1967).

Language lessons for the rest of the year followed this pattern.

Study III:

Two correlated language development programs were developed in the third year of the project. Response elaboration and verbal feedback continued to be used in presenting individual lessons. It was assumed that a format of language instruction could be developed (based on ITPA scores) that would include the strongest aspects of the curriculum of the preceding years, but at the same time could also be diagnostic in nature.

A series of new lessons was developed using the thematic approach of Study II and incorporating the expressive language and concept formation elements of Study I.

After one semester, the lead teacher suggested that these new lessons were non-directional and included too many objectives within a single lesson. For example, one series of lessons introduced the names of various fruits so as to increase the labeling vocabulary of the children. However, an attempt was also made to use the lessons to extend the use of descriptive adjectives, categorize the fruits by different classes, and stimulate the use of complete sentence structure when describing the fruits.

The revised language program used during the second semester was a plan of language strategies to be employed for all language occurrences during the day. It was directed at: detecting and correcting language disabilities; introducing the basic structure of expressive language to the learners; making basic language structures habitual for the learners; and, using basic language structures to deal with naturally occurring events.

A series of psycho-linguistically oriented lesson plans were now developed. Their format facilitated identification of specific language deficits; provided flexibility in varying the level of difficulty; permitted correlation with the core of other classroom activities. The auditory discrimination format shown in Table 16 illustrates a psycho-linguistically based lesson.

Procedures for teaching basic structure underlying the English language were introduced during the formal language periods. Stress was placed on teaching polar and non-polar discrimination (e.g., long-short, black-white, up-down) and the production of statements incorporating these discriminations (Hodges, McCandless, Spicker, 1967).

D. Ancillary Language Activities.

Sharing Activities. The objectives of a) stimulating more adequate ability to talk to a group; b) encouraging better attention in group situations; c) developing memory for ideas presented in group situations (all extremely important in improving school readiness), coupled with the observed deficiencies of the children in these areas, led to incorporating a sharing period in the daily program.

To improve each child's ability to talk to a group, the "grab bag" game was played. As objects were pulled from the bag the children took turns describing them. The teacher encouraged elaborative language by asking about the properties of the object.

To develop concentration and memorization skills, the children were encouraged to recall experiences from activities which took place on preceding days.

Table 16

AUDITORY DISCRIMINATION LESSON FORMAT
DIAGNOSTICALLY BASED CURRICULUM PROJECT

(This format should be used prior to the auditory memory format. The materials incorporated are suggested materials. Some of the materials used will be used in the auditory memory format.)

MATERIALS: rhythm instruments which will produce a wide range of sounds for gross and fine auditory discrimination: piano, bell tones, etc.

Basic Task	Alter Difficulty Level	Correlated Activities
1. Select two objects which produce grossly different sounds (i.e., bell and drum). Present them to the class and use the basic identification format for naming the objects. Demonstrate the sounds which they make. Let the group members "try" them out. Discuss the differences in the sounds which the objects make (i.e., channel the discussion to use terms which you have previously taught the group, such as: loud, soft, high, low, same, different.		Take the children for a walk. Have them listen for differences in bird sounds, etc. Music time: Play a familiar song that the children have already learned, but do not tell them the name. Let them guess the song heard. Voice identification game: Have the children guess each other's voices by having different children repeat a phrase such as: "Hello, how are you today?" The children should have their eyes closed.
2. Have children close their eyes and sound the object twice. Ask, "Was it the same sound?" Encourage a unison vocal response. Feed back the response to the children and demonstrate to them while they are watching you. When you have a reliable response on same sounds, then tell the children to	At this level, the number of stimulus objects may be increased rather rapidly. In introducing a stimulus object, be sure the children are able to: a) Label the object	

Table 16
(cont.-)

Basic Task	Alter Difficulty Level	Correlated Activities
listen carefully because you might try to feel them. Then vary the procedure by introducing different sound patterns (i.e., bell, bell; then bell, drum). If the children use the descriptive phrase, "different," feed back the response. However, also encourage the use of "It's not the same." Be sure to use complete sentences in your feedback and remember to supply children with the correct response when they are unable to respond. In feeding back the response, demonstrate the stimulus sounds and have the children observe this.	b) Describe it in some manner. c) Identify the sound when they see you use the object to make the sound (i.e., associate sound with label). The difficulty level may be increased by decreasing the difference between the sounds made. A high-difficulty level would be telling differences in two sounds made on the piano or bell tones.	
3. When the children can respond comfortably with the stimulus sound being made in front of them with their eyes closed, move the stimulus materials behind them and repeat procedure two (2) with the children having their eyes open and the sounds being made behind their backs. The response will be made by each individual		Game: "Doggie, Doggie, Where's Your Bone?" One child, acting as dog, sits on a chair with his back to the rest of the class. A block, or other object, is used as the "bone" and is placed under the "dog's" chair. The teacher points to a child in the room to come and take the bone

Table 16
(cont.-)

Basic Task	Alter Difficulty Level	Correlated Activities
child, but the other children should be alert to check the child's response.		from under the chair. The "dog" tries to decide who took the bone by listening for clues as to where the person walked from in the room, etc. Playground Activities: Listen for various sounds different equipment might make, such as swings, teeter-totter, bouncing of a ball, jumping rope, running, etc.

[Source: Table 12, p. 56, Hodges, McCandless, Spicker (1967)]

A record chart was kept on the blackboard to illustrate how the children were progressing in such abilities as sustaining group interest and improving articulation and voice quality.

> Several blank squares were placed beside each child's name. A simple set of rules was established. One square was filled in with colored ink each time a child (a) faced the group when reporting, (b) had something interesting to tell, (c) spoke loudly enough for all to hear, and (d) spoke clearly enough to be understood. This simple technique produced quickly visible improvement in each child's performance.
>
> Story of the Week. A story-time period was included in the program in order to extend the children's acquaintance with children's literature, to improve their ability to listen attentively to a story, and to develop skill in retelling a story in sequential order.
>
> Only one story was used a week.

The activities planned around this story were distributed throughout the week. These activities included the introduction of the story by the teacher, and a variety of follow-up experiences such as showing a film of the story and the children retelling the story in sequential order, first through the use of cut-out pictures and then without the aid of pictures. The teacher would also tell the story incorrectly and ask the children to correct the faulty version. The teacher would read the story, omitting certain words and phrases which the group supplied. The culminating activity for each Story of the Week was a dramatization of the story by the children. The repetition, instead of boring the children, apparently gave them a feeling of confidence through real familiarity with the tales. This modification of a typical kindergarten activity was found to be much more effective than traditional story periods in working with the present population of children (Hodges, McCandless, Spicker, 1967).

Structured Field Trips. The first formal language lessons were developed around a unit on farm animals. Here, ancillary language activities served as an introduction to, rather than a reinforcement for, the formal lesson. A farm trip was planned. This activity was carefully structured in order to provide an optimal learning situation. Two days were spent in preparing for this trip. First, the concept of farm animals was introduced to the children through pictures and plastic models of animals. Attention was called to comparison and contrast of size, shape, color, and so on. Records of sounds made by farm animals were played, and farm stories, songs, and games were intorduced. It was then judged that the children were prepared to attend to and understand the things they would see on the farm. The physical arrangements for the trip included a child-adult ratio of four children to one adult. This insured ample opportunity to ask questions and discuss what was seen. The post-trip sessions included films and discussions, and established the setting for the formal language lessons.

Snack and Lunch Time. Snack and lunch time were exploited to extend vocabulary concepts and develop number concepts. On these occasions, either the class teacher or one of the assistants usually sat and ate at the tables with the children. This provided experience in using polite language and engaging

> in friendly conversation with an adult. Color recognition and taste discrimination were practiced by varying the color and nature of the juices served (e.g., apple juice, lemonade, grape juice, cherry juice). Size, shape, and number concepts were reinforced by offering a variety of snacks such as cookies, cheese crackers, and dry cereal bits. At times the children counted the number of snacks each child had or discussed their color, size, and shape. Conversation also included identifying all the foods that were served, differentiating liquids from solids, vegetables from meats, and raw or green vegetables from cooked or yellow ones. Though informal, this was consciously planned by the teachers. Lunch was served cafeteria style. As children presented their plates to the teacher, they were taught to say, "May I have some -- (naming the food)." They also indicated whether they wanted a large amount or a small amount (Hodges, McCandless, Spicker, 1967).

Concepts such as color, texture, direction, and position were also developed through activities like art, free play, and physical education. In summary, the teachers availed themselves of every opportunity to increase the number of ancillary language experiences during the day.

E. Motor Development

The Kephart Perceptual Motor Development Scale was used to measure gross motor facility; the Lincoln-Oseretsky Motor Development Scale was used to measure fine motor facility. The fine motor factor included finger speed, arm steadiness, arm and hand precision, and finger and hand dexterity. The gross motor factor included static balance, dynamic precision, gross body coordination, and flexibility.

Based on the findings from Study I, the succeeding 2 years placed greater emphasis on the development of fine motor skills by devoting the formal motor lessons to that end.

Children were divided into two groups of approximately eight students each for daily formal instruction in fine motor skills. Lessons were based both on test results and observations of the children's performance. They included activities such as maze tracing, coloring, cutting, and pasting; placing dowels in peg boards; tracing and copying stencils; manipulating snaps, hooks and eyes, buckles, buttons, and modeling clay. These activities were sequenced by level of difficulty.

A separate daily physical education period gave the EPS subjects opportunity for gross motor development.

Evaluation

Each of Studies I, II, and III was evaluated and analyzed separately. The data from the three populations was then combined, producing larger numbers in the three treatment groups (EPS, KC, AHC), and analyzed again. The pattern of gains made in all areas measured is quite similar for the separate studies. For this reason only the combined test results are reported in this section. The analyses were done by applying a one way analysis of covariance.

A. Measures of Achievement (Hodges, McCandless, Spicker, 1967)

The two cognitive behaviors measured in each study were level of intelligence and language facility. The Stanford-Binet Intelligence Scale and Columbia Mental Maturity Scale were the instruments used to measure gains in IQ; the Illinois Test of Psycho-linguistic Abilities and the Peabody Picture Vocabulary Test were used to measure language development.

Intelligence, (Tables 17 and 18): Analysis of the differences between pairs of adjusted means revealed that the EPS groups' combined mean was significantly greater than either the KC or AHC combined mean and that the KC mean was significantly greater than the AHC mean.

The mean for EPS children on the CMMS was equal to the KC collapsed mean; but, both groups significantly exceeded the AHC group.

Mean IQ for both EPS and KC groups shifted from about the middle of the borderline retardation range to the classification of normal for both Binet and CMMS. The AHC group remained within the borderline retardation range.

These results indicate that the experimental curriculum was more effective in increasing intelligence than was the traditional kindergarten curriculum. The investigator, therefore, concluded that a preschool year was more effective than an analagous year spent in residence at home.

Language, (Tables 19, 20, and 21): On both the ITPA and PPVT tests, the experimental group improved significantly more than the KC, and KC significantly more than AHC.

Table 17

STANFORD-BINET IQ SCORES FOR STUDIES I, II, AND III COMBINED
DIAGNOSTICALLY BASED CURRICULUM PROJECT

Group	N	PRETEST Mean	PRETEST SD	POSTTEST Mean	POSTTEST SD	POSTTEST Adj. Mean	Pre to Posttest Mean Gain
EPS	42	73.57	9.08	90.38	10.99	90.91	16.81
KC	44	75.27	9.43	87.54	11.51	86.90	12.27
AHC	56	74.18	9.96	78.27	8.80	78.38	4.09

[Source: Table 20, p. 74, Hodges, McCandless, Spicker (1967)]

Intervention experiences were even more effective for language than for intelligence development with the former showing both more relative and absolute gain than the gains demonstrated by intelligence. At posttest, EPS (and to a lesser degree, KC) children were performing at about the same level in measured intellectual and language skills, whereas at pretest they had been much more retarded in language.

Results from the follow-up testing administered during the first grade for all Study I and II children indicated that the intervention children, whether EPS or KC, seemed to have stabilized in IQ by the time their preschool year was finished; but, the AHC children, given the new experiences of school, showed gains in IQ of sufficient magnitude to cancel the significant differences which formerly existed between these three groups.

Table 18

CMMS IQ SCORES FOR STUDIES I, II, AND III COMBINED
DIAGNOSTICALLY BASED CURRICULUM PROJECT

		PRETEST		POSTTEST			Pre to Posttest
Group	N	Mean	SD	Mean	SD	Adj. Mean	Mean Gain
EPS	42	83.98	10.51	94.36	12.73	94.07	10.38
KC	43	83.95	9.82	90.28	14.13	90.01	6.33
AHC	42	82.43	10.96	82.90	11.19	83.47	.47

[Source: Table 21, p. 76, Hodges, McCandless, Spicker (1967)]

In the area of language development, the EPS children exhibited decelerated progress; the KC group maintained progress; and, the AHC group showed accelerated progress.

These results may indicate that a traditional first-grade program, though capable of maintaining IQ gains resulting from preschool experiences, cannot sufficiently challenge these children to capitalize on their previous achievements.

B. Other Evaluation Indices (Hodges, McCandless, Spicker, 1967)

Motor Development, (Table 22): Only development of fine motor skills was measured for indications of change. The results of testing indicated that at the conclusion of the intervention period EPS = KC, and EPS and KC AHC.

Table 19

LANGUAGE-AGE DATA ON THE ILLINOIS TEST OF PSYCHO-LINGUISTIC ABILITIES FOR STUDIES I AND III COMBINED DIAGNOSTICALLY BASED CURRICULUM PROJECT

Groups	N	PRETEST Mean	POSTTEST Mean	POSTTEST Adj. Mean	Pre to Posttest Mean Gain
EPS	26	46.60	64.73	66.46	18.13
KC	27	51.27	63.74	62.46	12.47
AHC	27	50.52	57.33	56.95	6.81

[Source: Table 28, p. 85, Hodges, McCandless, Spicker (1967)]

Table 20

SUBTEST DATA ON THE ILLINOIS TEST OF PSYCHO-LINGUISTIC ABILITIES FOR STUDIES I AND III COMBINED DIAGNOSTICALLY BASED CURRICULUM PROJECT

	ADJUSTED POSTTEST MEANS		
Subtest	EPS (N=25)	KC (N=26)	AHC (N=23)
Auditory-Vocal Automatic	56.87	56.74	55.53
Visual Decoding Test	75.65	69.88	68.35
Motor Encoding Test	72.91	63.74	60.34
Auditory-Vocal Association	66.29	61.61	59.15
Visual-Motor Sequencing	69.96	66.00	56.15
Vocal Encoding test	70.92	63.25	50.98
Auditory-Vocal Sequencing	57.77	58.88	54.82
Visual-Motor Association	72.30	73.39	61.13
Auditory Decoding	61.85	64.95	56.56

[Source: Table 29, p. 87, Hodges, McCandless, Spicker (1967)]

Table 21

PPVT SCORES FOR STUDIES I, II, AND III COMBINED
DIAGNOSTICALLY BASED CURRICULUM PROJECT

		PRETEST		POSTTEST			Pretest-Posttest
Group	N	Mean	SD	Mean	SD	Adj. Mean	Mean Gain
EPS	42	64.73		91.33		91.90	26.60
KC	44	68.34		82.97		81.95	14.63
AHC	56	65.16	21.44	75.28	19.89	75.66	10.12

[Source: Table 30, p. 89, Hodges, McCandless, Spicker, (1967)]

Personal-Social Adjustment: The measure used for assessment in this area was an Intensity Task Involvement Scale devised for use in Study III. From these results, it was concluded more tentatively than for previous conclusions, that the EPS curriculum is associated with more gains in intensity of involvement in teacher-directed tasks than is the KC experience.

In addition, sociometric data from the students and comparison surveys from the teachers also indicated improvement in social behavior for the EPS groups during the preschool year.

C. Modifications and Suggestions

Several modifications which occurred over the period from Study I to Study III were: the division of language classes into high- and low-vocal groups; the division of children into two groups for fine

Table 22

LINCOLN-OSERETSKY MOTOR DEVELOPMENT SCALE DATA FOR STUDIES II AND III COMBINED DIAGNOSTICALLY BASED CURRICULUM PROJECT

		FINE				GROSS				TOTAL			
		PRETEST	POSTTEST			PRETEST	POSTTEST			PRETEST	POSTTEST		
Group	N	Mean	Mean	Adj. Mean	Gain	Mean	Mean	Adj. Mean	Gain	Mean	Mean	Adj. Mean	Gain
EPS	30	11.00	19.60	21.22	8.60	7.10	14.27	14.41	7.17	18.10	33.87	35.79	15.77
KC	31	13.39	19.61	19.57	6.22	8.58	14.42	14.06	5.84	21.97	34.10	33.41	12.13
AHC	28	15.64	14.86	13.17	-0.78	7.25	12.46	12.70	5.21	22.90	27.32	26.03	4.42

[Adapted from Table 33, p. 94, Hodges, McCandless, Spicker (1967)] motor lessons; the concentration of effort on fine rather than total motor development; the designing of a language curriculum which could be more easily adapted to individual children and had face validity for the teacher; the addition of male teacher aides. The rationales for these changes were given in the general and specific methodology.

Recommendations for future programs were: explain to a teacher the rationale upon which the curriculum is based, so that she can translate it into educational practice; refrain from using the packaged language lessons alone, they are not as effective as the combined use of ancillary language activities and structured lessons; experiment with diagnostic instruments prior to your study to ascertain whether they are sensitive enough to detect deficits in specific areas of learning; always consider the child's home environment as a cue to what is effective when attempting to apply motivational devices, rewards and punishments; do not offer to pay parents for permitting their children to be in a special project; the scope of intervention projects should be larger than just innovations in school curriculum such as those in the present study; provide transportation to and from school; provide breakfast; provide a follow through program for grades one to three.

Budget

Costs were in excess of the traditional kindergarten program.

Clinical Psychologist	Part-time
School Psychologist	Part-time
Special Educator	Part-time
Reading Specialist	Part-time
Teacher	Full-time
Aide	Full-time
Coordinator	Full-time
Social Worker	1 day a week after initial contacts
Dental	Welfare
Food	35¢/day/child
Transportation	$300 a month
Testing	
Consulting Fees	
Clothing	$300 a year
Medical	Fee

Quoted Sources

Hodges, W. L, McCandless, B. R. and Spicker, H. H. The development and evaluation of a diagnostically based curriculum for preschool psycho-socially deprived children. Washington, D.C.: Bureau of Research of the Office of Education, December 1967.

Hodges, W. L. and Spicker, H. H. The effects of preschool experiences on culturally deprived children. Young Children, 1967, 23 (1), 23-43.

For More Information

Howard H. Spicker (general)
Indiana University
Bloomington, Indiana

D. L. Lillie (motor development lessons)
Indiana University
Bloomington, Indiana

K. E. Stearns (language lessons)
Indiana University
Bloomington, Indiana

THE ACADEMIC PRESCHOOL IN CHAMPAIGN, ILLINOIS

Introduction

The design of the academic preschool program was based on the rationale that children who are one or more years retarded in language, reading, or mathematics must learn at a rate which exceeds the learning rates for normal children in order to catch up. Fifteen behavioral objectives defined the specific performance criteria for the children to meet. The curriculum focused directly on these objectives ensuring that the child received an amount of exposure, practice, and correction sufficient to teach what was intended. Direct instruction, similar to that used in regular school, was employed as an alternative to the informal style of the traditional nursery.

The experimental children were 4 and 5 year olds, predominantly Negro, and of low socio-economic status. Their parents were usually unskilled or semi skilled laborers; at least 30 to 40 percent were receiving some welfare assistance.

The program began in the fall of 1964 and data were collected through the spring of 1968. Each of three groups of approximately 15-20 children received the treatment for 2 years prior to their entrance into the first grade. The first group, Study I, participated in the preschool during academic years 1964-66; they completed the second grade in June 1968. The two subsequent groups, Studies II and III, were in the program from 1965-67 and 1966-68, respectively. The most recent data was collected from a follow up study of groups I and II in the early elementary grades. Only Study II will be described here, since it was the only study for which there was both an experimental and comparison group.

The effectiveness of the program was indicated by the significant superiority of the experimentals over the controls in Stanford Binet IQ gains over the 2 year period of instruction. In addition, upon completion of the 2 year preschool program the experimentals tested considerably above first grade level in mathematics and language as measured by the Wide Range Achievement Tests.

Personnel

The following persons represented the permanent annual project staff:

A. Administrators. (Two full-time.)

They supervised the work of the teachers, organized the teaching and testing schedules, and prepared materials.

B. Teacher-experimenters (Four part-time; undergraduate students; extensive experience working with children.)

They were responsible for administering the treatment and the tests.

The project staff had access to the services of the following personnel: curriculum consultants, teacher interns, school nurse, psychologist, and a full-time secretary.

Methodology: General

The present study was based on the two assumptions that: 1) a child who achieves well on an intelligence test or a more specific test of academic achievement has been taught the skills that are being tested and 2) if children can learn at an above normal rate during 2 years of intense preschool instruction, their performance will not drop during the second year of instruction as is commonly the case in traditional nurseries.

The subjects of the experiment were children who met the following selection criteria [Bereiter and Engelmann, 1968]:

1. According to Warner ratings of occupations (1949) and housing ratings obtained through the City Planning Commissioner's office, subjects were from low socioeconomic homes (mean weighted S.E.S. in the low 40's).
2. Subjects were 4 years old by December 1, in keeping with public school's entrance policies.
3. Subjects did not have previous preschool experience.
4. Children with gross physical handicaps or severe retardation were excluded.

The children were initially identified through their siblings in the public schools. Four year old children were chosen for this intensive training because 1) children can and will absorb intellectual growth at this age and 2) if this growth is not provided at preschool or elementary age, the disadvantaged child will never gain on his advantaged contemporaries (Bereiter, 1967).

The children who qualified for the program according to the above criteria were administered the Stanford Binet tests and were divided into three groups - high intelligence, middle intelligence, and low intelligence. They were then assigned to an experimental or comparison group with each group receiving the same proportion of highs, middles, and lows. Adjustments were made to balance the numbers of Negroes and whites, males and females in each group; Fifteen children were assigned to the experimental class and 28 to the comparison class.

The subjects in the comparison group receive 1 year of traditional preschool education and 1 year of public school kindergarten. During the first year, they attended a 2-hour-a-day preschool based as closely as possible on the recommendations of child development authorities. The emphasis of the program was on play, self expression, development of a positive self image through role playing, and typical nursery school activities. The pupil/teacher ratio was 5:1.

The experimental children were enrolled in the academic preschool for 2 years prior to their entering first grade. They received 2 hours of instruction daily. The pupil/teacher ratio was 5:1. The curriculum emphasis was on rapid attainment of basic academic concepts. The following set of objectives set forth the minimum level of expected performance to be attained by the students following 2 years of instruction. The success of the preschool program was judged by these standards of academic achievement.

Minimum Goals

1. To respond to both affirmative and not statements when asked "What is this?" "This is a book. This is not a book."

2. To respond to both affirmative and not statements when told "Tell me about this ______ [book, pencil, etc.]."

3. To use polar opposites ("If it is not _____, it must be _____") for four or more concept pairs, e.g., big-little, up-down, etc.

4. To use the following prepositions correctly in sentences: on, in, under, over, and between.

5. To name positives and negatives for at least four classes, e.g., "Tell me something that is a weapon." "A gun is a weapon." "A cow is not a weapon."

6. To perform simple if-then deductions. The child is presented a picture with large and small squares. All the large squares are red, but the small squares are of various other colors. "If the square is big, what do you know about it?" "It is red."

7. To use not in deductions. "If the square is little, then it is not red. What else do you know about it?" "It is blue or yellow".

8. To name all the basic colors.

9. To count to 20 without assistance and to 100, assistance at tens (30, 40, 50, etc.)

10. To count objects up to ten.

11. To recognize and name the vowels and at least 15 consonants.

12. To distinguish words from pictures.

13. To select rhyming words in jingles.

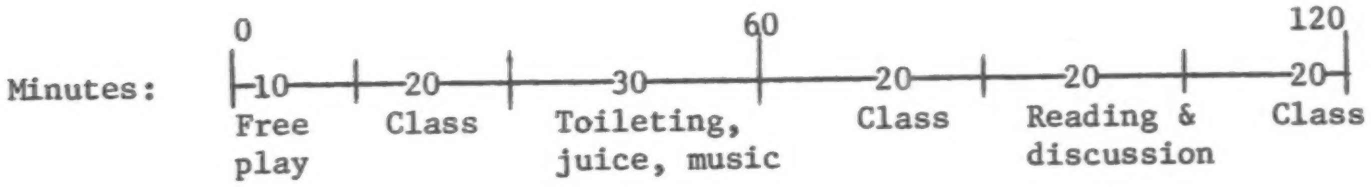
14. To possess a sight-reading vocabulary of four words or more, with evidence that the word on the flash cards has the same meaning for the child as corresponding spoken word.

Goals one to nine are associated with words and constructions that are spoken and could be learned in the course of informal conversation either at home or at school. Objectives 10-15 were associated with numerical and reading skills, achieved through special training.

Classes were conducted for 2 hours a day, 5 days a week. With occasional exceptions for field trips, the schedule in Diagram 1 was adhered to throughout the program, starting from the first day. Three homogeneous groups were formed from the experimental population, and each group had four to seven children. Three teachers - one each for language, arithmetic, and reading - participated. After an initial 10-minute period of free play, each group would go to a classroom for an instruction period of 20 minutes. Then all children would come back to a "homeroom" for 30 minutes of toileting, snacks, and singing.

Diagram I

DAILY SCHEDULE FOR ACADEMIC PRESCHOOL PROGRAM



After this each group would go to another 20-minute subject matter class. The children would then come back to the "homeroom" for a 20-minute period devoted to reading and discussion of stories and then they would separate for the final instruction period. All teachers participated in the "homeroom" activities. A fourth teacher worked with children whose performance was too low to permit their participation in the classroom activites.

The three regular groups were stratified according to level of performance, the initial grouping being made on the basis of Binet scores, but with frequent shifts being made as performance levels changed.

The classroom periods were presented as work sessions to the children, and they were encouraged not to play but to participate with the lessons as requested. This behavior was rewarded by verbal praise, and during the first month, by cookies. Children were reprimanded for deviations from the rules and, if this was not enough, were excluded from the instructional groups for short periods of time. Teachers kept the instruction session as lively and as enjoyable as possible and shifted the basis of motivation to the children's own accomplishments and progress as improvements became evident.

> Both the content and the style of teacher presentation used in the language, arithmetic, and reading sessions derived from a relatively simple principle: teach in the fastest, most economical manner possible. In language, the children were taught how to use a "minimum" instructional language. The language derived from the requirements of future teaching situations. In all teaching situations, the teacher would present physical objects of some kind and call the children's attention to some aspect of the objects -- perhaps the color, perhaps the relative size, perhaps the position in relation to another object. The teacher would also "test" the children, primarily by asking a child (or the group) a question. The basic language that is needed for all such instructional situations is one that adequately describes the object presented, that adequately calls attention to the conceptual dimension to which the teacher is directing the children, and that allows for "tests" or questions.
>
> The language that satisfies the requirement of the teaching situation consists of the two statement forms,
>
> This is a __________.

This _________ is _________.

with plural and not variations (This is not a _________), with yes-no question (Is this a ball?) and with the what question (What is this?). The classroom instruction presumed nothing more of the child at the outset than that he be capable of initiating what was said to him [Bereiter and Engelmann, 1967].

A. Language Concept Class [Bereiter and Engelman, 1968]

The language teachers did not use a rich variety of expressions; rather, they confined themselves to the basic patterns noted above until the children had demonstrated through performance that they understood the statements and the relationship between statements and questions. Thus, the basic language of all instruction was taught.

Recognizing that learning the rules of language and logic is a matter of grasping and generalizing analogies, the program was structured so as to dramatize those analogies. Rather than grouping concepts on the basis of their thematic associations (concepts related to the school, to the zoo, etc.) they were grouped together on the basis of the rules governing their manipulation. Thus polar sets of diverse content (big-little, hod-cold, boy-girl were taught as part of a single sequence, so that the child eventually came to grasp the major principle governing such sets -- the principle that saying that something is not one member of the set is equivalent to saying that it is the other member of the set.

B. Arithmetic Class [Bereiter and Engelmann, 1968]

In arithmetic, the children were taught how to count objects and events (Tell me how many times I clap). They were then shown how addition, subtraction, and multiplication reduce to counting operations. For example, the children were shown how to translate such problems as

$5 + 3 = b$

into the counting operation: start out with five; get theee more ; and you end up with ______; we have to count them to find out.

All addition problems were reduced to this operation. The children were taught some rote facts, such as the series

1 + 1 = 2
2 + 1 = 3
3 + 1 = 4
Etc.

since this series articulates the relationship between counting and adding; however, there was no attempt to teach the children an exhaustive set of arithmetic facts. Rather, the emphasis was on the operations that would lead to a correct solution.

The children were introduced to algebra and story problems early. To work algebra problems, the children used a variation of the translation they were taught for handling regular problems. For example, the operation for handling the problem

5 + b = 8

was: start out with five; get more: we don't know how many more, but we know we end up with 8. By starting out with five and getting more until he ends up with eight, the child discovers how many more he has to get.

The initial story problems were quite similar to the statement operations taught in connection with each type of problem. For example: a man starts out with five balls; then he gets more; he gets three more; how many does he end up with? The problem translates directly into the arithmetic statement:

5 + 3 = b

Problems were then systematically de-structured. That is, synonymous expressions were systematically introduced. After the children had learned to handle the basic story problems, the children were introduced to problems in which a man has so many balls, in which he

3

finds so many balls, in which he *makes* so many balls.

C. Reading Class [Bereiter and Engelmann, 1968]

The children were taught to read according to a modified ITA approach. The rules for decoding printed characters into spoken words were taught rather than comprehension skills for which the language program provided adequate preparation. The innovations which were introduced into the experimental program (primarily with the low performing children) had to do with the formation of long-vowel sounds and the convention for blending words. The following symbols were introduced to designate long-vowel sounds: ā, ē, ī, ō. The rationale for these symbols was that they could be introduced to help the child "spell" or sound out a variety of long-vowel words; after the children learned these words (sō, gō, nō, hē, shē, mē, sāve, fīne, etc.), the diacritical mark could then be dropped without grossly changing the total configuration of the word.

To help the children learn how to blend words, a skill which many disadvantaged fail to master after years of reading instruction, only continuous-sound words (*fan*, not *ban* or *tan*) were introduced initially. The children were taught how to proceed from letter to letter without pausing. In sounding-out words in this manner, the children were actually saying the words slowly and could see the relationship between the slowly produced word and the word as it is normally produced. To assure adequate performance in blending, the children were given say-it-fast drills with spoken words. "Say it fast and I'll show you the picture: te-le-phone."

By introducing certain artificial restrictions, we were able to reduce the inconsistency and complexity of English orthography and highlight its logical aspects. We restricted the initial vocabulary to three-letter consonant-vowel-consonant patterns, and avoided use of some of the more troublesome consonants. For further simplification we used only lower case letters.

Learning to apply the rules required, learning the implied visual discriminations ("look the same") and auditory discriminations ("sound the same"). Learning this set of rules and learning the conventional sound values of the alphabet was taken to constitute the readiness phase of reading instruction, after which the program proceeded with a rather conventional phonic approach, using spelling patterns that followed the order of Bloomfield and Barnhardt's Let's Read (1961).

As early as possible, the children were introduced to controlled-vocabulary stories written by the reading staff. After reading them, the children took them home. Taking stories home functioned as an incentive.

In each of the three study areas, the teachers proceeded as quickly as possible, but only after the children had demonstrated through performance that they had mastered the skills that they would be expected to use on higher-level tasks.

The above description of the curriculum is a very general sketch. In each of these major subject areas, there were many sub-tasks. To teach each of the subtasks, the teacher had to take a number of steps. For example, to teach the children to blend words that are presented orally (a sub-task reading), the teacher first presented two-part words, each part of which is a word -- ice-cream, motor-boat, snow-man. Next, the teacher introduced relatively long words the parts of which were not "words," sit-ting, shov-el, mon-ey, etc. Next, the teacher broke the words that had been presented into more than one part -- mo-tor-boat, snow-ma-n, sh-ov-el. The teacher then introduced shorter words, broken into two parts: si-t, bea-t, c-ream, m-an. Finally, the teacher introduced short words that were divided into individual phonemes -- m-a-n, s-i-t, sh-o-v-l. More detailed examples appear in the next section of this report.

The teacher had three primary roles in the experimental program [Bereiter and Engelmann, 1968]:

1. She maintained discipline;
2. She taught concepts;
3. She tested the children's knowledge of concepts

before either providing a remedy or proceeding to the next task.

The general rules that guided her behavior in all three areas were:

1. Teach as rapidly and economically as possible;
2. Don't assume that the children know anything unless they have demonstrated that they do;
3. Get as many correct responses and as few incorrect responses out of the children during the allotted time as possible;
4. Teach the behavior that is necessary for successful classroom performance as economically as possible.

The goal of the program was to induce learning at an above average rate, which meant that the procedures that induce learning at a normal rate were not adequate. The teacher did not have the luxury of first shaping behavior and then introducing academic content. She simultaneously introduced academic content and the rules of behavior associated with the content. The focus was always on the behavior related to the task, never on behavior in the abstract. The sanctions that were used were:

Negative:

Loss of food reinforcers (raisins, juice);

Additional work ("If you keep that up, you'll have to work when the other children are singing. You're here to work.");

Physical manipulation (tugging on an arm to secure attention, tapping leg, physically turning children around in seat, turning face toward presentation);

Scolding, usually in loud voice ("Cut that out! Sidney! Look here!");

Repetition of task ("Do it again...Again...Again... Again. Now, after this when I tell you to do it, you do it.");

Positive:

The use of reinforcing objects in presentations ("Look what's on the snail's tail.");

The use of novel teacher reaction to objects ("Look at that silly number. That's 7. I can't stand a 7. have to erase it. Oh, there's another 7. I can't stand a 7...");

The use of personalization ("Here's a story about, guess who! Sidney!);

The use of praise ("Wow, did you hear Sidney? He's a smart boy. Let's clap for him. He is smart and he's working hard.");

Dramatic change of pace (After having the children yell out a series of statements in unison, the teacher stops. The room is dead silent. The children look at each other and smile. Then they laugh. The teacher interrupts in a loud voice, "Okay, let's hear it: four plus zero equals four.");

A dynamic presentation of objects (During a two-minute segment, the teacher may present as many as 30 objects -- some repeated -- and as many questions. "Tell me about this...what about this...And this... And this...");

Positive speculations ("Boy, will your mother ever be surprised when she finds out that you can read. She'll say, 'I never knew you were so smart.' That's what she'll say.");

Exercises with a reinforcing pay-off (Everybody likes to erase numbers, right? So I'll point to and and you can erase it.");

Relating positive comments of others -- both real and fictitious ("Do you know what the man who watched you read said to me? He said, 'These are the smartest kids I've ever seen in my life.' And you want to know something? He's right.");

In addition to the reinforcing aspects of the presentation, however, the teacher followed a basic rule in presenting any new concept: The presentation must be consistent with one and only one concept. When the teacher presented the concept big, for example, she used the same statement forms, "This __________ is big," and "This __________ is not big," to describe a variety of object pairs -- cups, circles, figures, men. Each of the objects in the pair was identical except for size. Through this type of presentation, the teacher demonstrated the type of statements that are used to describe the invariant. "This cup is big; this ball is big; this man is big..."

Because of the presentational requirements necessary to demonstrate a concept, the teacher presented a great many examples, usually 10-15 times more than are used by the average classroom teacher (a judgment based on the requirements set forth in instructional materials designed for children in the early primary grades).

The teacher tested the children on various levels of performance. The first test of a concept was whether the children could find (or point to) the appropriate example. "Find the man that is big."

The next test was whether the children could answer yes-no questions about an object the teacher pointed to. "Is this ball big?...Is this ball big?"

The next test was whether the children could answer what questions. These are more difficult than yes-no questions because the children must supply the content word. "This ball is what?...Yes, this ball is big."

The teacher usually introduced the various tests rapid fire, in no particular order. However, if the children had difficulty with a what question or a yes-no question, the teacher retreated to a finding task and then paired the task with the yes-no and what questions. "Sidney, find the ball that is big...Good. This ball is big. Is this ball big?...Yes, this ball is big. This ball is what?...Yes, this ball is big."

While the rate at which questions are presented to the group and to individuals in the group varied with the tasks, the teacher often introduced as many as 20 questions a minute. She used the children's responses

> to these questions as indications of whether or not they had learned the concepts she was presenting. She geared her presentation to the lowest performer in the group, because the goal of instruction was to teach every child each critical skill. (If a child consistently lagged behind the others in the group, he was moved to a slower group in which his performance was more consistent with that of the other members.) [Bereiter and Engelmann, 1968]

The preschool floor plan consisted of one large home room with three adjacent "special subject" rooms and lavatory facilities. The homeroom contained tables, refrigerator, piano, and shelves with equipment and books. The three study rooms were carpeted, had acoustical tiled ceilings and were unadorned.

Toys were limited to form boards, jigsaw puzzles, books, drawing and tracing materials, Cuisenaire rods, a miniature house, barn and set of farm animals. Motor-toys, climbing equipment, and paints were not available.

The project staff either designed their own curriculum materials or made adaptations from publications currently on the open market.

Teacher orientation consisted of training in the strategies for teaching the language, reading and math classes, and for disciplining, plus preparation for the first day of school including a complete rehersal of how to begin and what to do. Inservice training was also provided.

Parents were not invited to participate directly in the program; however, their interest and enthusiasm was maintained through parent meetings and home contacts made by college students who participated in the program as teacher interns.

Methodology: Specific

A. Language Class

The following is an example of the structure of a language lesson. (Bereiter, 1967).

1. Verbatim repetition:

Teacher: This block is red. Say it ...
Children: This block is red.

2. Yes-no questions:

Teacher: Is this block red?
Children: No, this block is not red.

3. Location tasks:

Teacher: Show me a block that is red.
Children: This block is red.

4. Statement production:

Teacher: Tell me about this piece of child.
Children: This piece of chalk is red.
Teacher: Tell me about what this piece of chalk is not.
Children: (ad lib) This piece of chalk is not green... not blue, etc.

5. Deduction problems:

Teacher: (with piece of chalk hidden in hand) This piece of chalk is not red. Do you know what color it is?
Children: No. Maybe it blue...Maybe it yellow...

These moves represent a rough hierarchy of task difficulty. In early stages of the program, large amounts of time have to be devoted to the lowest level -- verbatim repetition -- and deduction problems can seldom be handled. By the end of the program, most of the time is devoted to deductive problems, although at each new step in the program it is necessary to go through all of the moves, if only in very condensed form.

B. Arithmetic

During the first week the children learned the sumbols for the numbers 0-20 and the signs +, -, and =. They were taught that a number symbol is a form (shared by many particular things) and not a particular thing itself. After the children were proficient at determining whether numerals were the same as or different from model numerals, they were presented with the numerals completely out of context. Counting order was taught next and finally the mathematical identity statement form was introduced (e.g., 1 + 0 = 1). The children could then be asked specific questions about these mathematical statements (e.g., one plus what numeral equals one). This was the beginning of the problem solving stage.

Examples of other problems used were:

1. if $1 + 0 = 1$
   $2 + 0 = ?$
   $3 + 0 = ?$
   $4 + 0 = ?$

2. if $1 + 1 = 2$
   $2 + 1 = ?$
   $3 + 1 = ?$

3. if $1 + 1 = 2$
   $2 + 2 = ?$
   $3 + 3 = ?$

4. if $2 + A = 2$ $A = 0$
   $2 + B = 3$ $B = ?$
   $2 + C = 4$ $C = ?$

5. if $1 - 1 = 0$
   $2 - 1 = ?$
   $3 - 1 = ?$

6. Multiplication statements

3	X	1	=	3
count by threes		one time	end up with	three

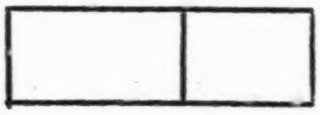
7. Count by multiples of a number

   1, 2, 3, 4, 5
   3, 6, 9, 12, 15

8. if $7 X 2 = 14$
   $7 X 3 = ?$
   $7 X A = 28$

9. Word problems were introduced last. First children were shown diagrams and asked to say and write statements and equations describing the diagram. Then they were given statements and asked to solve problems:

first



Two balls plus one ball equals three balls.

2 + 1 = 3

then

If you have two balls and someone gives you one more, how many do you have?

C. Reading Class

The reading program attempted to teach the children how to systematically crack the reading code. A hierarchy of tasks was presented to teach the mechanics of reading. This hierarchy is described below:

Reading Hierarchy

1. Symbol-Action Games were used to teach the children left to right orientation in reading. Words were described as being made up of sounds; the first sound was represented by the left side of the word, each succeeding sound was positioned after the first sound. The teacher drew symbols on the blackboard in a line and placed an arrow (⟶) under the sumbols. The children and teacher would then do what the symbols suggested (e.g., hand clapping) by reading them from left to right. Eventually the arrow was placed under a word to remind the children to read from left to right. The variety and sequence of symbols used in the games were frequently changed, just as the variety and sequence of letters in a word could be changed.

2. Sounds of letters were taught rather than names. Initially, the children were taught only one sound for each letter. After the children learned the ideal rules for reading, exceptions were introduced. All sounds were initially symbolized by lower case letters. Only a few sounds were introduced before the children began reading. These were: m, a, s, ē, f, d, r, c, i and th. The children practiced drawing and recognizing the letter symbols for these sounds.

3. Blending of two or more succeeding sounds was taught next. Real and artificial combinations of letters were used (e.g., fffffaaaa-mmmm). The children would practice saying these blends slowly and then fast.

4. Rhyming of sounds and eventually words was used to demonstrate the relationship between the parts in a word in both appearance

and sound. The rhyming lessons began with long words having large parts which carry over from word to word (e.g., supperman, zupperman). Latter rhymes between three and two letter words were introduced (e.g., sit, fit, me, he).

Combinations of these four steps were used during a 20-minute reading lesson. The children were frequently given letters and words to take home to show their parents and to use for practice.

Flash cards of words and pictures were used interchangeably to show that both are symbols of things that can be named (e.g., the printed word train and a picture of a train both stood for the verbalization "train").

Activities such as music and math were also used to reinforce concepts taught in language and reading. The names of the letters of the alphabet were taught in a song. The number of times one specific letter appeared in a word was counted (e.g., foot has two O's).

Evaluation

A. Measure of Achievement

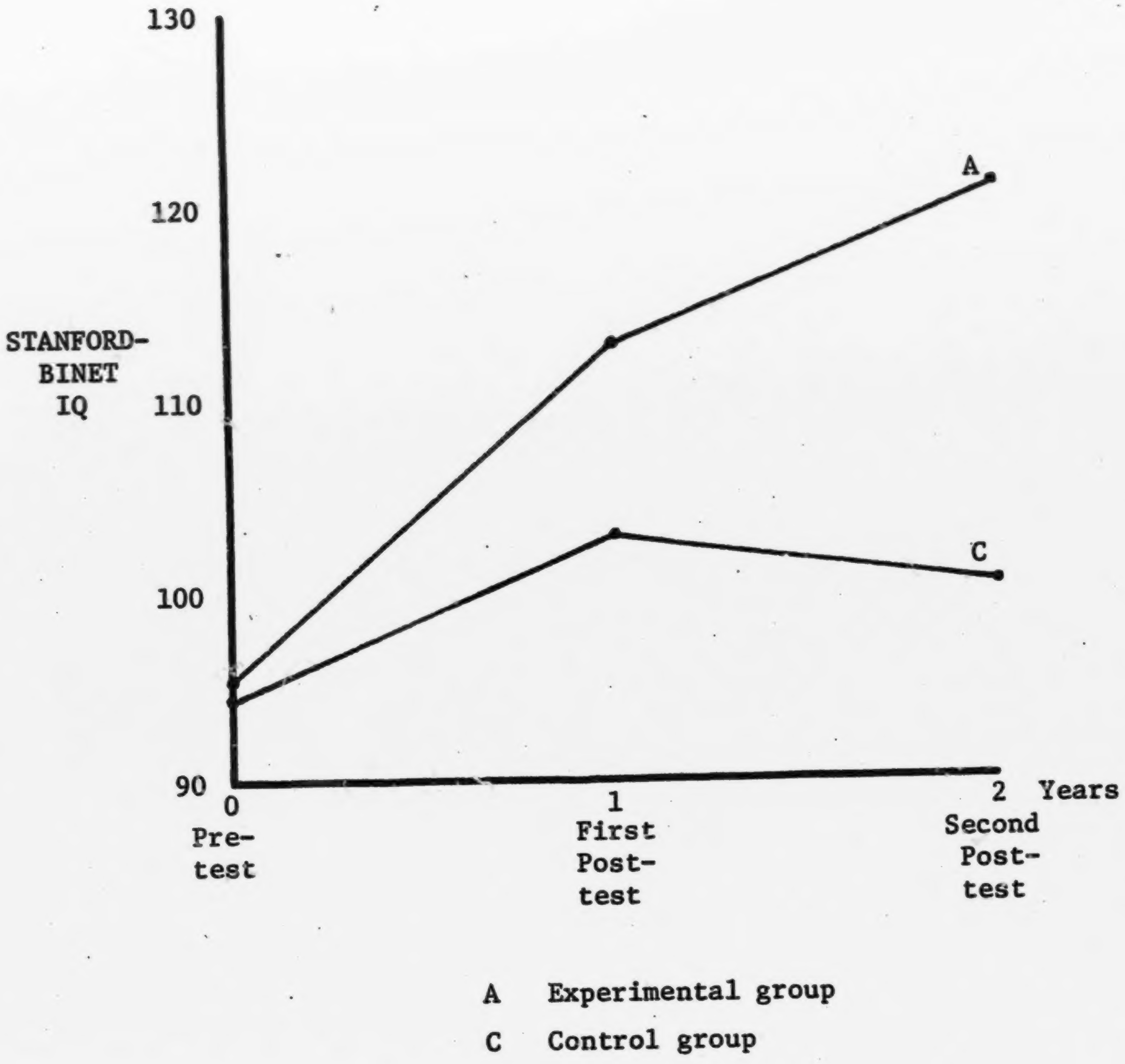
The Stanford Binet Intelligence Test and Wide Range Achievement Tests in reading, arithmetic, and spelling were administered during the course of the 2 year program. Both the experimental and control groups received the Binet IQ test three times -- once in the fall of 1965, again in the spring of 1966, and finally in the spring of 1967. The experimental group also received the Wide Range Achievement Test Battery in the spring of 1967 -- this was prior to their entrance into the first grade of public school.

The experimental group achieved significantly greater Stanford-Binet IQ gains than the subjects in the comparison program, both at the end of the first and second years of instruction. Diagram 2 illustrates the mean gains made by each group over the 2 year period. The comparison group showed an 8.07 gain after the first year of instruction, but had a loss of 2.96 points after the second year. The experimental showed a 17.14 gain after the first year and an 8.61 gain after the second year ($p=.02$ for Year 1, .001 for Year 2).

Table 23 shows the achievement performance of the 12 experimental students who completed the 2 years of the experimental program. The

Diagram 2

STANFORD-BINET IQ SCORES FOR EXPERIMENTAL AND CONTROL GROUPS IN THE ACADEMIC PRESCHOOL PROGRAM, 1965-67



mean reading achievement was grade level 2.60 with a range of 1.6 - 3.7. The mean arithmetic performance was 1.87 with a range of 1.4 - 3.3. The mean spelling performance was 1.87 with a range of 1.0 - 2.3.

Table 23

ACHIEVEMENT OF ACADEMIC PRESCHOOL
AFTER 2 YEARS OF INSTRUCTION

		Grade Level on Wide-Range-Achievement Test		
Subject	I.Q.	Reading	Arithmetic	Spelling
MA	123	2.7	2.2	1.8
TA	103	1.6	2.3	1.7
TB	121	3.1	3.3	2.2
MB	131	3.7	3.1	2.1
RC	119	2.7	2.9	2.0
MC	112	3.6	2.5	2.3
BG	139	3.1	3.3	2.1
BP	112	1.6	1.4	1.0
SV	108	2.0	2.2	1.7
RV	138	3.1	2.7	2.0
DD	129	1.7	2.2	1.9
DW	118	2.3	2.0	1.6
	121.08	2.60	2.51	1.87

[Adapted from Table 4 of Appendix, Bereiter and Engelmann, 1968]

B. Other Evaluation Indices

It was difficult to evaluate the effects of the program on the personalities of the children; however, interviews with the parents and observations of the children disclosed no ill effects as a result of the highly structured formal instruction. There were few behavioral problems beyond the second week. Parents noted no regressive behavior such as bed wetting, thumb sucking, or nightmares.

According to the investigators, the most noticeable characteristic of the children after 2 years of instruction was their confidence in their abilities to meet a challenge.

C. Modification and Suggestions

The best single reference to date which recommends how to organize and implement a similar program is the book, Teaching Disadvantaged Children in the Preschool (1966).

Budget

The annual replication cost of the program for some 15 disadvantaged pupils cannot be estimated as the personnel were employed in various other research and development activities. The experimental materials were also being used with a group of students from a middle socio-economic class.

Sources Quoted

Bereiter, C. *Acceleration of intellectual development in early childhood*. Urbana: University of Illinois, Project No. 2129, June, 1967.

Bereiter, C. and Engelmann, S. *The effectiveness of direct verbal instruction on IQ performance and achievement in reading and achievement in reading and arithmetic*. Champaign, Illinois: Wolfe School, 1968 (?).

Bloomfield, L., and Barnhard, C.J. *Let's Read*. Detroit: Wayne University Press, 1961.

Other Sources Not Quoted

Bereiter, C., and Engelmann, S. *Teaching disadvantaged children in the preschool*. Englewood Cliffs, New Jersey: Prentice-Hall, 1966.

For More Information

Carl Bereiter, Ph.D.
Ontario Institute for Studies in Education
Bloor Street
Toronto, Canada

Siegfried Engelmann, Ph.D.
Institute for Research on Exceptional Children
Wolfe School
4th and Healey
Champaign, Illinois

Ernie Washington, Ph.D.
Department of Curriculum and Instruction
Graduate School of Education
Rutgers University
New Brunswick, New Jersey

THE HOMEWORK HELPER PROGRAM OF NEW YORK CITY

Introduction

High school students helped failing elementary school children with their homework and tutored them in reading. Each child had his own tutor, and the two met for two hours once or twice a week in the afternoon.

The children were in grades 3 through 6 in the elementary schools of an area of the Lower East Side of New York City in which one-third of the housing was classified in 1964 as sub-standard. The median family income at that time was estimated at $69 a week. Puerto Ricans comprised 26 percent of the population; Negroes, 8 percent.

The program began in February 1963 under the auspices of Mobilization for Youth, Inc., a community agency with 110 tutors and 330 pupils drawn from the 16 elementary and 5 high schools in the area. Nine centers were opened, each staffed by a master teacher (licensed by New York City) and a number of tutors. In recent years failing junior and senior high school children have been included in the program with college students as tutors, but no evaluation exists for these years. The program has operated not only in the academic year but also as a summer school. In 1967-68 the program was placed under Board of Education decentralized control, and about 750 tutors were helping about 2,000 pupils.

On testing, experimental pupils who had received 4 hours of tutoring per week were shown to have made significant gains in reading age compared with controls, but not experimental pupils who had received only 2 hours per week. The tutors showed considerable gains in reading age compared with controls.

Personnel

A. Program Coordinator. (A former assistant principal.)

He assumed responsiblity for coordinating all the centers, including participation in the recruiting, selection, and supervision of all personnel. He assisted district superintendents (in the new decentralized program) to develop the Homework Helper Program in their districts.

B. Master Teachers. (Nine or more teachers each with at least 5 years' experience and licensed by the Board of Education of New York City, one per center.)

The master teachers supervised and administered an individual Homework Helper Center. They trained the tutors by day-to-day supervision and guidance, and in afternoon workshops one day a week. They assisted tutors with guidance and instructional problems of pupils when these arose.

C. Tutors. (Eleventh- or twelfth-grade high school students, or, later, college students. Up to 1967, they were chosen on the basis of IQ over 90, reading at grade level or better, school recommendations, and parental consent. As from 1967, the tutors had to be drawn from poverty groups and the basis for selection changed. In 1965, 40 percent of the tutors were male; 60 percent, female.)

The tutors assisted one pupil, for 2 hours one or 2 days a week to do homework, to learn to read, and to become creative. They played games with the pupil and attended the afternoon workshops for training.

D. Attendants. (Grade school graduates, one per center.)

They kept records of attendance and controlled school supplies.

Custodial services had to be paid for by the program in order to use the school buildings outside school hours.

Dr. Albert Deering has been the program coordinator since the program's inception, and to him goes much of the credit for both the initial success and the subsequent development of the program.

Methodology: General

The stated objectives of the program were:

1) to encourage high school students to remain in school (through economic aid);

2) to present a new opportunity for these high school students to achieve success;

3) to motivate high school students towards improved academic achievement;

4) to expose high school students to a tutorial experience at an age still young enough for them to choose teaching as a career;

5) to provide individual assistance to elementary, junior, and senior high school pupils in the need of help with basic skills;

6) to provide models for the elementary, junior and senior high school pupils, possibly increasing their aspirations for school success;

7) to promote integration through tutor-pupil assignments and activities.

The first objective was met by paying tutors ($1.50 to $2 per hour) for their services. Thus a tutor could earn up to about $35 per month, working 4 afternoons each week. The tutors achieved success (the second objective) through noting the improved progress and interested responses of their pupils. Of course, some pupils did not improve, but it was unlikely that a tutor would have 3 like that. The tutors were motivated towards improved academic achievement, according to the project reports, through their involvement in helping others and by their own improvement (as shown by the evaluation) on standardized tests. Certainly the tutors were given a chance to teach at an early age (the fourth objective), and were offered some basic training in the Monday workshops, as well as during the tutorials, by the master teachers. The fifth and sixth objectives were met by the tutoring. The seventh was met to the extent that rather fewer of the tutors came from minority groups than did the children tutored.

The program used space already existing in the schools, there usually being at least 2 or 3 classrooms available in each school where the program was carried on. In a typical afternoon the tutor would meet his pupil, and they would have some refreshment and a chat before commencing the 2-hour tutorial, which would begin with a 40-minute period in which the tutor would help his pupil through any homework problems. (One difficulty at the beginning of the program was that not all teachers were setting homework, and the tutors had to invent their own learning activities for this period.) Emphasis would be placed on the pupil developing good work habits and study skills.

The second 30 or 40 minutes of the tutorial were used for reading. The materials used were different from those normally available in the schools, being purchased specially for the program.

Thirdly, there would be a 20-minute period of creative activity. This might include some creative writing by the pupil, the use of the tape recorder to record words spoken by the pupil and perhaps his tutor, the making of puppets or models, or the making up of scenarios.

The last period of the tutorial was used for recreation; this took the form of educational games, a wide variety of which were available.

The tutors' training from the master teacher in each center was based from 1966 on the Homework Helper Tutor Manual, prepared by the program coordinator. This manual reflects much of what was taught to the tutors orally in previous years. After initial orientation to the nature and purpose of the program, the tutors were told something about the developmental characteristics of elementary school children, grades 3 through 6. This was followed by a discussion of the necessity for tutors to consider their pupils as individuals, regardless of what grade they might be in. The manual exemplified the need for the tutor to build up good rapport with his pupil, and included 30 excerpts from tutors' reports which showed how tutors in previous years actually did this.

The coordinator and master teachers of the program were determined that it should work with, not against, the conventional school system. To ensure this, the tutors were made aware of the educational content and curriculum of the regular classroom instruction. The manual contained simplified accounts of the general goals and curriculum of elementary schools in New York City, followed by full statements of the language arts, mathematics, social studies, science, art, music, and health education curricula. Interested tutors were directed to the official Grade Guides of the New York City Board of Education, too. The tutors communicated with the classroom teachers through the master teacher, who conveyed plans for action and reports of progress from the tutor to the teacher, and returned to the tutor suggestions from the classroom teacher for tutoring.

To assist the tutor in developing good work habits and study skills in his pupils, the manual explained that the tutor should explain to the pupil how to do the homework assigned rather than actually doing it. Nine different types of homework activity commonly selected by teachers were cited in the manual, and the tutor was trained to check the pupil's homework assignment book at every meeting. The principle of success leading to success was explained to the tutor in relation to helping pupils with their homework. Again, a set of excerpts from tutors' reports concerning homework were included in the manual.

Since reading comprised a major portion of the tutoring, the manual had a separate section on reading, including not only an explanation of visual and auditory perception but also simple accounts of the 4 basic approaches to word recognition, and of the importance of comprehension and organizational skills in reading. The materials used most to teach reading in the program were explained in some detail next, with notes on ways to use them, again drawn from former tutors' reports. The Readers Digest Skilltexts, the SRA Reading Laboratory, the Catherine Stern Structural Reading Series, the Readers Digest Science Readers, and the SRA Reading for Understanding, and Pilot Library Kits were mentioned. The SRA Word Game Kit and Dolch materials were also available.

Other materials used by the tutors and discussed by them in the manual are counting frames, Cuisenaire rods, science kits, the Mathematical Book Lab, and the Science Book Lab.

A Homework Center newspaper was prepared in some centers, and the tutors helped pupils prepare articles and reports for publication in it. This too was explained in the manual, and was one of the creative activities towards the end of the tutorial period.

Tutors in training also gained ideas of what to do in the recreation time from the manual. One former tutor wrote about Lotto, for instance; object Lotto, consonant Lotto, and vowel Lotto were all used. Jig-saws and other educational games such as the Scott Foresman Rolling Readers were used too. Another tutor wrote about Password and Hangman; others, about dominoes, checkers, flash cards, and Scrabble for Juniors.

The tutor manual included accounts by former tutors of the use of various audio-visual devices available to them, either continuously or on a loan basis. These included Viewlex filmstrip viewers, tape recorders, a 16 mm projector, and a tachistoscope. The blackboard was used extensively by most tutors of course.

Finally, the manual stressed the need for the tutors to plan their work ahead as carefully as possible while maintaining flexibility, and listed some suggestions for doing so. While plans were not mandatory, reports were, being completed on a daily basis to show the content of the tutorial, the materials and methods used, and any actual products. Comments about pupils' progress were to be entered too.

Methodology: Specific

Excerpts from former tutors' reports are quoted here to exemplify certain aspects of the program:

> A. First get to know your child. I get to know mine as a friend and not as a pupil. I make sure he knows me as well. I find out about his weaknesses, his dislikes, and his ability to work in one session. We start off with homework, if any. I ask him if he understands it fully. If not, we go over what is troubling him, then we proceed. We get ready for reading after I've checked his homework. If I'm using the Reader's Digest, I let him choose the story. He starts off with the key words, then he proceeds in reading. I write down his

mispronounced words. But soon I break in and say, "Here, let me read a couple of sentences." Before I start, I explain to him that he shouldn't chop up his sentences. I tell him to listen to the smoothness in my voice, then I tell him to try what I did in the same manner. I say, "Say a few words at a time, not just one." It seems to work every time. After he finishes, I give him the short exercises from the book and I make up some of my own. We also go over any words that he had difficulty in pronouncing. After reading, we go on to math. We take it part by part. We don't leave a topic until I'm sure he knows it frontwards and backwards. But don't think all we do is work. In between we take time out for pretzels and fruit juice. I mix my reading with speaking. After he finishes his story, we pronounce and spell any mispronounced words. Then we go on to experimentation in science. I take one of our science kits or some of his science study that he has learned in school. We also do work in social studies and spelling and a little music. However, before you start to help the child with his homework or anything else, you should first know your child like you know yourself. We, the tutors, are in a better position than a teacher. We have a one-to-one relationship with the child rather than a one-to-thirty. I want to know my pupil first. I want to know his ability in doing things. I do not mingle in his family affairs unless I see he is troubled by something. I want him to know me as well as I know him. I want him to believe that this is not a second school but a place where he gets help and meets people and has a little fun. When my child is ready to leave for the day and pack his materials, I want to feel that he has really learned something. I do not say "Well it is time to go," and drop it like that, but I always say something cheerful, like "My, you were bright to-day." These children seldom get a chance to hear this at any other time. You should never discourage the child.

B. When I first started to help the kids with their homework, I found that they did not enjoy doing it and I did not enjoy teaching it. I found many ways to make homework more enjoyable. The first way was to let the children do their math homework on the blackboard. The children liked writing on the board so the homework went faster. After the work was corrected, the pupil would copy it on to his paper. For homework in finding the opposite of a word we would play a game of hot and cold. He would tell me the word he needed to find the opposite of, and I would tell him if the opposite word was displayed in the room. The child would move a certain amount, and I would tell him whether he was getting hot or cold. I also found that if I let the child make believe that he was the tutor it made the homework easier. He would act like I did not know the answer to the homework question. Then the child would have to act like the tutor and give me the answer and explain the answer so that I would understand it.

C. By far the most important materials available to tutors and pupils are the reading materials. These include the Readers Digest and the SRA materials. The Readers Digests consist of a series of editions of reading material for each grade, ranging from 1st grade to advanced readers. Teacher Editions have the answers to the exercises in them. The SRA materials are of 2 types: the Rate Builders which are short selections used to test and improve the pupil's speed, and longer two-page Power Builders used to strengthen pupil's comprehension, vocabulary, and speed. The SRA materials are arranged by color, one color representing a grade level. Each color in both the Rate Builders and Power Builders is divided into 12 selections, each one progressively more difficult. The Readers Digest and SRA materials have exercises on vocabulary, comprehension, and word structure. Neither states in view of the pupil what grade level the selection is designed for. Actually this is a form of deception which doesn't work because any pupil really interested can figure out for himself what level he is working on. Whatever material I was using, I always began with some kind of motivation. The picture at the beginning of the story often served as a starting point. The pupil would speculate about the meaning of this picture, keeping the title of the story in mind. These pictures have more value and importance for poorer readers than for the better readers. I often make a social studies assignment a reading assignment as well. My pupil, Jose, for example, would have to read a one-page story in a social studies work book and then answer questions. I usually follow the same procedure that I use when teaching him reading. In other words, I gave him some discussion in the way of motivation, had him read, and then quizzed him on the material he read. I also made use of the maps in the book and those that I drew on the blackboard. I always have the pupil read silently at first and then go over the questions. I would sometimes allow him to read aloud after he had read silently. When he had completed the story, I had him do the exercises at the end.

D. The SRA Word Game Kit consists of cards containing short vowel sounds, long vowel sounds, initial consonants, final consonants, diagraphs, diphthongs, blends, syllables, prefixes, and suffixes. I have used these games with my pupils stressing the short vowels and diphthongs. My technique for these games was to play them the same way I would play steal the old man's pack. That is, I place four word cards on the table and give four cards to each player. If the card in one hand matches the card on the table, or if it matches another player's, the player says the word and its sound and then takes the word and its sound; for example, Hat, short a takes Cat, short a. As a result of using these games, the pupil has mastered his difficulty with short vowels and diphthongs. In my opinion, these word games are very good and a help in teaching a certain skill. The pupils like them because they are having fun while learning.

E. The child I have is reading the Catherine Stern Books. He comes in twice a week and can't wait for the reading period. He likes to pronounce the words properly and is eager to read. He usually looks at the pictures which help him to say the words better. He finished the first Catherine Stern book very easily and quickly and is now using the second. He seems to enjoy it. He had problems with his "sh" and "ch" words but he can now pronounce these sounds easily. In order to motivate my child to read, I try to get something interesting for him. I suggest you interest your pupil by giving him a book to read on a subject that means something to him.

F. The Science Book Lab of Mathematical Shapes consists of numerous cards cut into triangles, rectangles, squares, and wedges. There are also built-in plastic tubes and pipe cleaners to connect the pipes. It is fun for pupil and tutor to follow along in the manual. The manual is organized to progress from simple to more difficult projects with the basics discussed at the beginning. The first experiment helps the pupil and tutor to define and understand a line. Next we find out about different types of lines, such as curved lines and straight lines that are existent in objects in our classroom. The student is then able to learn the differences in two-dimensional flat shapes that are composed of different numbers of straight lines. After each definition, the pupil makes a model of the particular shape with pipe cleaners and tubes. We then experiment with the creation of different two- and three-dimensional figures and find out about their names. Later the pupil finds out about parallel lines and looks around the room for examples. I find that this kit is fun. The construction of complex shapes with the tubes is fascinating to the tutor as well as the pupil. The names of various shapes are taught according to the age and comprehension of the pupil.

G. For me a center newspaper has proven to be a very helpful material for instruction. In order to write an article for the paper, the child must first have an idea. More often than not, the pupil then organizes the facts in some order which is logical to him. While writing the article, the child becomes aware of the spelling, margins, capitalization, punctuation, neatness, paragraphs, and grammar. The child puts a part of himself on paper containing his ideas and his feelings. When completed, the tutor should have the child read his work and check for mistakes. Sometimes a drawing can accompany the article. This too, is reproduced in the newspaper. When the edition is given out in the center, the pupil eagerly searches for his article. When he finds his article, he rereads it and brings it home, shows his family, and brings it to his classroom. The entire newspaper is digested by the pupil who has a natural curiosity to see who, among his friends, has an article in the paper and what his friends have written. This, of course, enables him to practice his reading skills. The newspaper helps the child in a very practical way and gives him a sense of pride towards himself.

H. Marilyn loves to work with the tape recorder. I believe the tape recorder is a great help in reading because she can read aloud while her voice is being taped and is able to hear how she reads. She enjoys this very much. At first Marilyn did not like to read, but as soon as I brought the tape recorder into the room she was willing to read. Marilyn also told me that she makes too many mistakes when she reads. After she heard her

> voice she was able to recognize her mistakes. I told her she must concentrate before reading a sentence. Marilyn used to point while reading, and she found this slows her down. I think the tape recorder helped her to speak more quickly.

Evaluation

The only evaluation of this program was made for the 1963-64 year, at which time 240 tutors were employed for 410 pupils, with a stratified matched control group of 185 pupils. Full results were obtained for 356 experimental and 157 control pupils. For both groups, rather over half were Puerto Rican and about 30 percent were Negro. About half were boys in each group. Among the tutors 19 percent were Puerto Rican and 18 percent Negro. About 100 of the pupils had been tutored for 4 hours a week; the remainder, for only 2 hours a week.

A. Measures of Achievement

Pupil reading achievement was measured by pre- and posttesting with the New York Tests of Growth in Reading, Level C, Form 1 (revised), which consists of 56 multiple-choice items and 8 reading passages arranged in order of increasing length and difficulty, and yields a general reading comprehension score with a grade equivalent range from 2.0 to 7.7.

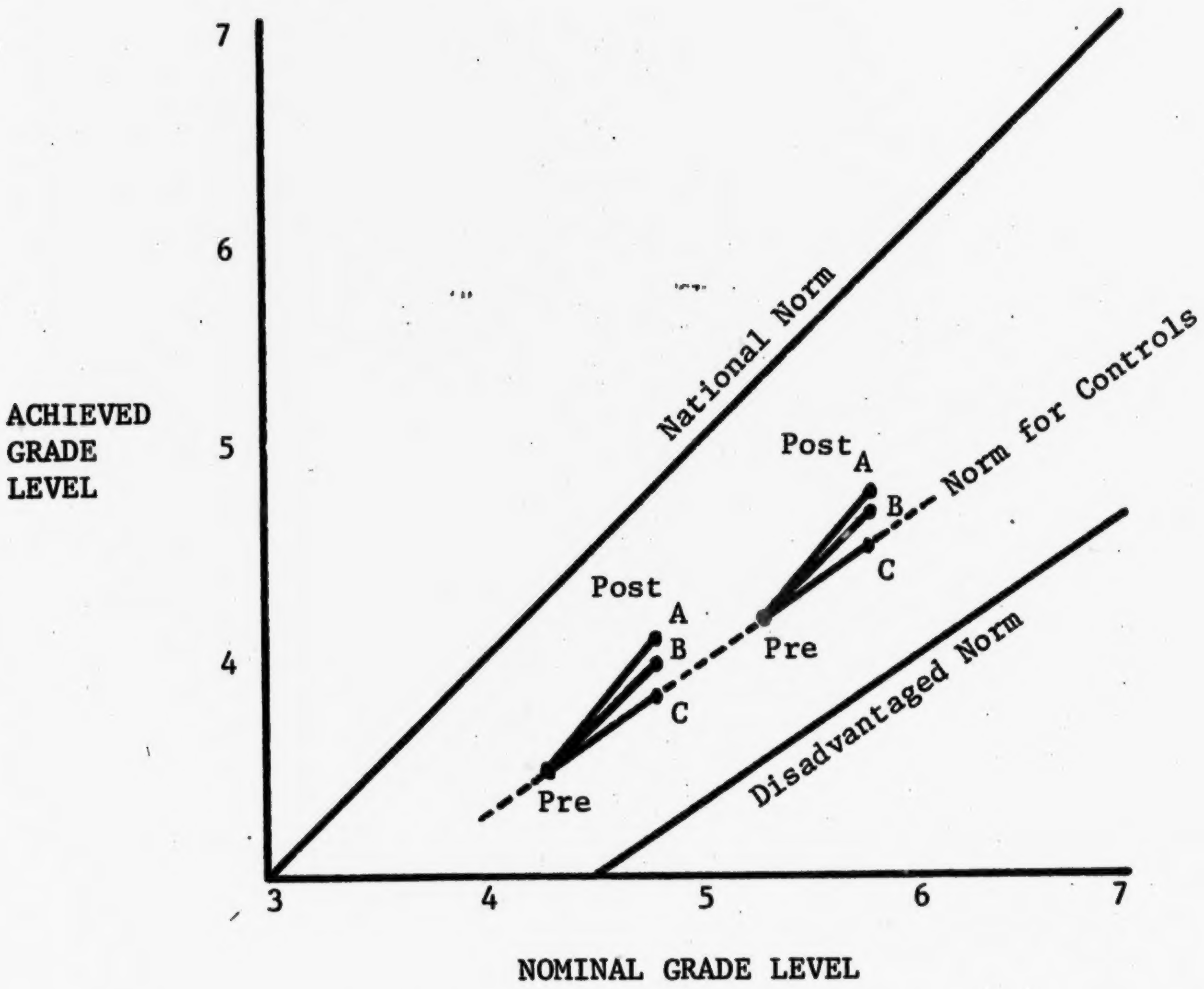
The gains in reading for 3 samples of pupils are summarized in Table 24. It should be noted that the 4- and 2-hour samples' scores were treated separately. This was done because there was no significant difference between the scores of the complete experimental group and those of the control group, whereas the 4-hour experimental sample showed significant gains compared with the control sample.

These results are shown graphically in Diagram 3.

The tutors were also subjects for the evaluation, since there was reason to believe that their reading had improved as a result of their participation. Ninety-seven tutors were compared with 57 controls who were eligible but not selected to be tutors. The selection of tutors was on a random basis for all those eligible.

Diagram 3

GAINS IN AVERAGE READING AGE FOR THREE SAMPLES OF PUPILS IN THE HOMEWORK HELPER PROGRAM



A Four-hour experimental sample
B Two-hour experimental sample
C Control sample

Note: Since fourth- and fifth-grade scores are not quoted separately in the evaluation, the graph shows gains based on the assumption that average gains for both grades were the same.

Table 24

GAINS IN READING AGE FOR 3 SAMPLES OF PUPILS IN THE HOMEWORK HELPER PROGRAM

Sample	N	Gain in 5 months
Four-hour[a]	100	6 months*
Two-hour[a]	73	5 months
Control	79	3-1/2 months

[a] Since some centers had no 4-hour pupils, these samples were drawn only from centers having both 4-hour and 2-hour pupils.

* Significant, .05, when compared with control sample.

The tutors' reading achievement was measured by pre- and post-testing with alternate forms of the Advanced Level of the Iowa Silent Reading Tests (Revised New Edition), which measures skills in 8 areas: rate of reading, comprehension of short articles, rapid reading for specific details (directed reading), poetry comprehension, word meaning, sentence comprehension, paragraph comprehension, and skills useful in library research. The raw scores for each of the subtests can be rendered as standard scores, and the median of the subtest scores is used as a total score for the battery. The Quick Word Test, a test of verbal facility, was also administered.

Pretesting showed experimental and control samples to be closely comparable on both tests. The experimental sample had a nominal grade level of 10.7 and an achieved or actual grade level on the Iowa Test of 9.9, whereas the controls had an achieved grade level of 10.1 for the same nominal grade level, 10.7. The range was considerable, however, with about 20 percent of each sample reading below the eighth grade. On the Quick Word Test, the means for both samples were well below the norm.

In the seven months of tutoring between testings, the experimental sample averaged 3.4 years of achievement as measured by the Iowa Test, while the control sample gained 1.7 years on average. Practice with the complex test probably accounted for some portion of these considerable gains, and it is likely that the control sample in fact progressed only at a pace which would be shown by line C on Diagram This line is parallel to the norm and shows the control sample as gaining 7 months of achievement in 7 months of schooling. The gain for the experimental sample, adjusted by the same amount, is then reduced to 2.4 years, as shown by line A on Diagram

Table 25

GAINS IN AVERAGE READING AGE FOR TWO SAMPLES OF TUTORS IN HOMEWORK HELPER PROGRAM

Sample	N	Gain in 7 months	Adjusted gain in 7 months
Experimental	97	3.4 years***	2.4 years
Control	57	1.7 years	7 months

*** Significant, .001, when compared with control sample.

B. Other Evaluation Indices

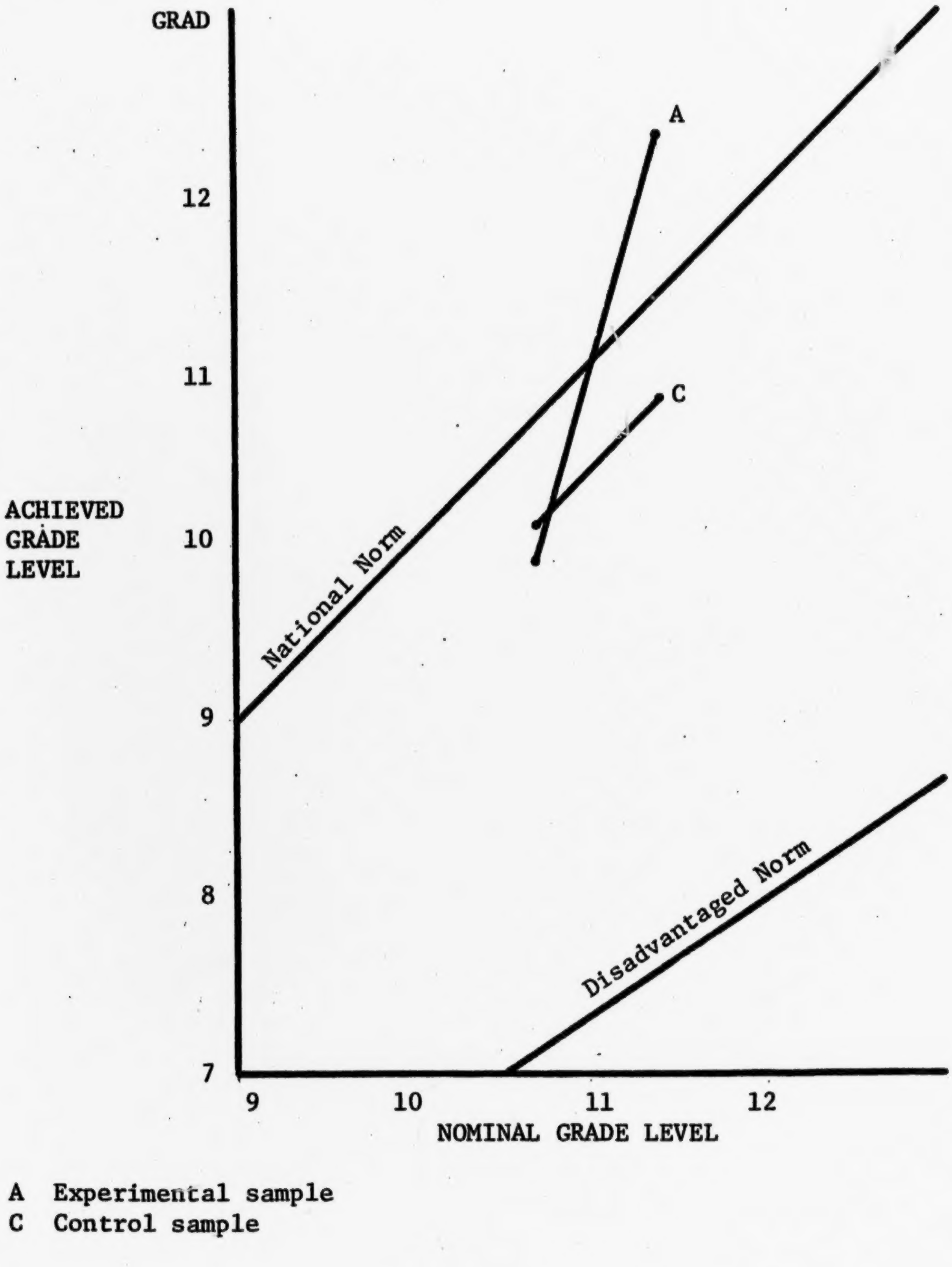
Data were collected for some of the pupils for teacher-assigned grades in reading, spelling, mathematics, science, and social studies; on behavioral ratings in work and study habits, social behavior, and written and oral participation; and on school attendance. Unfortunately, complete sets of data were not available, and no adequate analysis could be carried out.

Pupils' attitudes and aspirations were tested by questionnaire. Analysis of answers showed no significant changes over 5 months. The tutor-pupil relationship was examined for Negro and Puerto Rican pupils, to determine the effects of sex matching and ethnic mixing. None of the results was conclusive, although it did appear that for Negroes sex-ethnic matching might be important.

For the tutors, academic averages were collected, but the analysis failed to show any relationship between improved reading scores in the program and school performance.

Diagram 4

ADJUSTED GAINS IN AVERAGE READING AGE FOR TWO SAMPLES OF TUTORS IN THE HOMEWORK HELPER PROGRAM



A Experimental sample
C Control sample

Tutors' attitudes and aspirations were tested by questionnaire, and were shown to be highly positive both at the start and at the end of the evaluation period. No significant differences were apparent from the statistical analysis.

Pupil attendance had been over 80 percent; tutor attendance, over 90 percent.

C. Modifications and Suggestions

The evaluation occurred early in the life of the program, consequently a number of changes was made based on its results. The need for four hours a week tutoring rather than two was quite apparent, and now the program operates so that a pupil is tutored Monday and Wednesday or Tuesday and Thursday. Tutor training sessions are held on Fridays twice a month, while a 2-week orientation session has been introduced before tutoring began.

Budget (1963-64)

1	Project Coordinator	$ 49,100
14	Master Teachers	
11	Attendants	
2	Project Secretaries	
240	Tutors	$ 85,000
Supplies and Equipment		$ 7,600
Custodial Services		$ 10,000
Total		$151,700

These are quoted as examples only, and should be adjusted to present prices and for the greatly expanded nature of the present program. In 1963-64, the cost per pupil per hour was probably about $4, taking into account hidden costs such as office accommodation.

Quoted Sources

Cloward, R. D. Studies in tutoring. Journal of Experimental Education, Fall 1967, 36(1), 14-25.

Deering, A. R. The Homework Helper tutor manual. New York: Homework Helper Program of Mobilization for Youth, Inc., and New York City Board of Education, June 1966.

Other Sources Not Quoted

Deering, A. R. The development of the Mobilization for Youth Homework Helper Program: A case study. Dissertation Abstracts, 1967, 27(11).

For More Information

Dr. Albert R. Deering
City-wide Coordinator
Homework Helper Program
141 Livingston Street
Brooklyn, New York 11201
Telephone (212) 875-6660

INTENSIVE READING INSTRUCTIONAL TEAMS OF HARTFORD, CONNECTICUT

Introduction

Three Intensive Reading Instructional Teams (IRIT's) provided a comprehensive half-day program of reading instruction for a period of approximately 10 weeks. Groups of approximately 15 pupils move from teacher to teacher at 1-hour intervals, with each teacher specializing in one of three instructional areas: 1) phonics and word-attack skills; 2) basal reading program, stressing vocabulary and comprehension; and 3) individualized reading (literature and library orientation). Pupils returned to the sending schools in the afternoon to receive instruction in other basic subjects from their regular teachers.

Pupils referred for IRIT enrollment came from inner-city schools qualifying for Federal and State aid. They were placed in the IRIT program during specified periods allocated to each of the participating schools. Over the 3 years of the program, the levels of the pupils have ranged between grades three and six; however, during the 1967-68 school year the program was aimed primarily at pupils in the fourth and fifth grades. Pupils who were reading below grade level but nevertheless had the potential for growth in an intensive reading program and the ability to work successfully within a group were eligible for enrollment in the IRIT.

The IRIT program has been underway since the 1965-66 school year. Nearly 500 children were enrolled in the program during the 1967-68 school year. The structure of IRIT was based on a study of the daily, morning reading improvement program conducted by the Hartford Public Schools during the summers of 1962-65. This study indicated that reading improvement could be obtained in a relatively short period by the use of a number of innovations, including: a departmentalized structure with children moving from teacher to teacher in 1-hour intervals; a teacher specializing in each of three areas: basal reading program, phonics, and individualized reading; motivational and multi-media techniques; reading materials not contained in the regular classrooms; pupil-teacher conferences to motivate and individualize each child's reading program; and close contact with parents to assess the effects of the IRIT on the child in his own home.

The primary results of the IRIT program have been measured in terms of pre- and posttesting, using various forms of the California Reading Achievement Test. Significant gains were noted in the areas of vocabulary, comprehension, and total reading achievement. Limited studies were also made of the changes in measured intelligence and the extent to which the reading gains carry over into the following school year. Data from the Lorge-Thorndike Intelligence Tests given to 71 children in fourth through sixth grades indicated no significant gains following 10 weeks of IRIT instruction. A follow-up study indicated that, after 7 months into the school year following IRIT, reading scores were being maintained or improved upon in a regular classroom setting.

Personnel

A. Project Director. (Full-time.)

The project director was responsible for the IRIT, as well as for two other reading improvement sub-projects. As assistant to the district supervisor of reading, the project director had overall responsibility for planning, organizing, and promoting projects developed with state or federal funds involving reading and language arts services to disadvantaged children. Specific duties included assisting in staff recruiting and orientation, formulating evaluation procedures and preparing evaluation reports, requisitioning equipment and supplies, and serving as liaison between the project and the supervisor of reading, directors of instruction, and the principals.

B. Reading Specialists. (Three; one per team. Graduate work in diagnosis of reading influences, techniques in teaching or reading, and materials used for remedial reading.)

The reading specialists served as team leaders and coordinated the team activities. In addition, they served as teachers for one of the instructional segments.

C. Reading Teachers. (Six; two per team. Experienced classroom teachers with special strength in the area of reading.)

D. Clerk-typist Aide. (Three; one per team.)

The clerk-typist aides relieved the teacher from clerical duties, such as attendance records, communications with parents and the sending schools, correcting tests, preparing reports on students, and the mechanical preparation of instructional materials.

Methodology: General

The IRIT program employed a team approach to provide intensive small-group reading instruction. Pupils, in groups of about 15, moved from teacher to teacher at 1-hour intervals with each teacher specializing in one of three instructional areas:

Decoding Program - This area was organized to develop good word-analysis skills on the part of the student. A basic knowledge of speech sounds and the application of these sounds to word pronunciation was taught. This was followed by the development of a sequential program in word recognition which was coordinated with the other two areas.

Basal Reading Program - The purpose of the basal and developmental reading area was to provide instruction which would emphasize vocabulary improvement and comprehension development. Materials were used which stressed the skills of comprehension. Correlation of the child's previous basal reader with the IRIT program was emphasized.

Individualized Reading - The purpose of this area was to encourage the student to develop an interest and pleasure in reading. Each pupil was taught the reading skills as he needed them, and his comprehension was checked periodically. A portion of this reading period was devoted to pupil-teacher conferences and individual instruction.

The afternoons were free from teaching in order to allow time for: holding conferences and in-service programs with classroom teachers, planning each student's program cooperatively, preparing instructional materials, and investigating techniques and materials which could be used to make the teaching of reading to disadvantaged children more effective.

Methodology: Specific Examples

A variety of motivational techniques and materials were used in the IRIT program. Those reported as being particularly successful are described below:

A. An IRIT open house provided parents with an understanding of the program and emphasized the necessity for continued parent-teacher cooperation. During the 1967-68 school year the reading centers were visited by approximately 40 percent of the parents who had children enrolled in IRIT.

B. Motivational materials to build pupils' self-concept were emphasized. Today's Negroes (Hartford Public Schools, 1968), a booklet of biographies, was written by the pupils with team-directed activities to improve self-concept. Weekly newspapers and booklets of children's work were published to help build a positive self-image. Scholastic awards and certificates of participation were presented to the IRIT pupils.

C. A lending library of paperback books was established and used to promote wider reading. The library was a subtle technique for getting materials into the homes as a leisure activity and also for fostering self-reliance and appreciation of literature.

D. Individual learning packets were developed for use in the individual reading program in order to provide activities geared to pupils' needs.

E. Reading was correlated with home economics and industrial arts, and creative language booklets were written by the children. Up-to-date science content material was used for stimulation and enrichment of vocabularies.

F. Flee-zees (Fraser, 1967), a "Dr. Seuss" type workbook was prepared to help simplify the concept of homonyms and stimulate pupil interest. Pupils from one of the IRIT centers participated in the writing and illustrating of the original booklet.

G. Specific techniques for vocabulary development phrasing, and speech improvement were developed for use with the Bell and Howell Language Master. In an early survey of pupils, 93 percent reported this as the "best liked activity." Overhead projector games were also devised to stimulate interest in learning. Both team and pupil-produced transparencies have been used.

H. Improvement in oral expression was fostered through choral speaking, a puppet theatre, and the dramatization of both fables and scientific facts.

Evaluation

A. Measures of Achievement

The major results for each of the 3 years of the IRIT program are summarized in Table 26, in terms of mean scores on the California Reading Achievement Test. Each of the selected groups ranging from 36 to 45 children, was administered Form W, 1957 edition, at the start of the instruction and Form X during the final week. Both forms of the California Reading Achievement Tests were composed of the two sub-tests, one in vocabulary and the other in comprehension. The scores of these two parts and a total score for the entire test were recorded separately.

Table 26

SUMMARY OF CALIFORNIA READING ACHIEVEMENT TEST GAINS DURING THREE YEARS OF IRIT[a]

				Mean Grade Equivalent Scores								
				Vocabulary			Comprehension			Total		
Year	No. of Groups	Grade Range	No. of Pupils	Start	End	Gain	Start	End	Gain	Start	End	Gain
1965-66	9	3-5	372[b]	4.0	4.6	.6[b]	3.8	4.6	.8[c]	3.9	4.6	.7[c]
1966-67	9	4-6	341[d]	4.0	5.0	1.0	3.9	4.9	1.0	4.0	5.0	1.0
1967-68												
Grade 4	2	4	55	3.6	4.4	.8[e]	3.4	4.4	1.0	3.4	4.4	1.0
Grade 5	2	5	70	4.0	5.4	1.4[e]	3.8	5.3	1.5	3.9	5.4	1.5

[a] Table adapted from tables in the evaluation reports (Hartford Board of Education, 1966; Nearine, 1967, 1968) Form W (1957 Edition) administered at start of program; Form X administered during last week of instruction.

[b] Represents 98 percent of the total IRIT enrollment. All but one group significant at or beyond the .05 level.

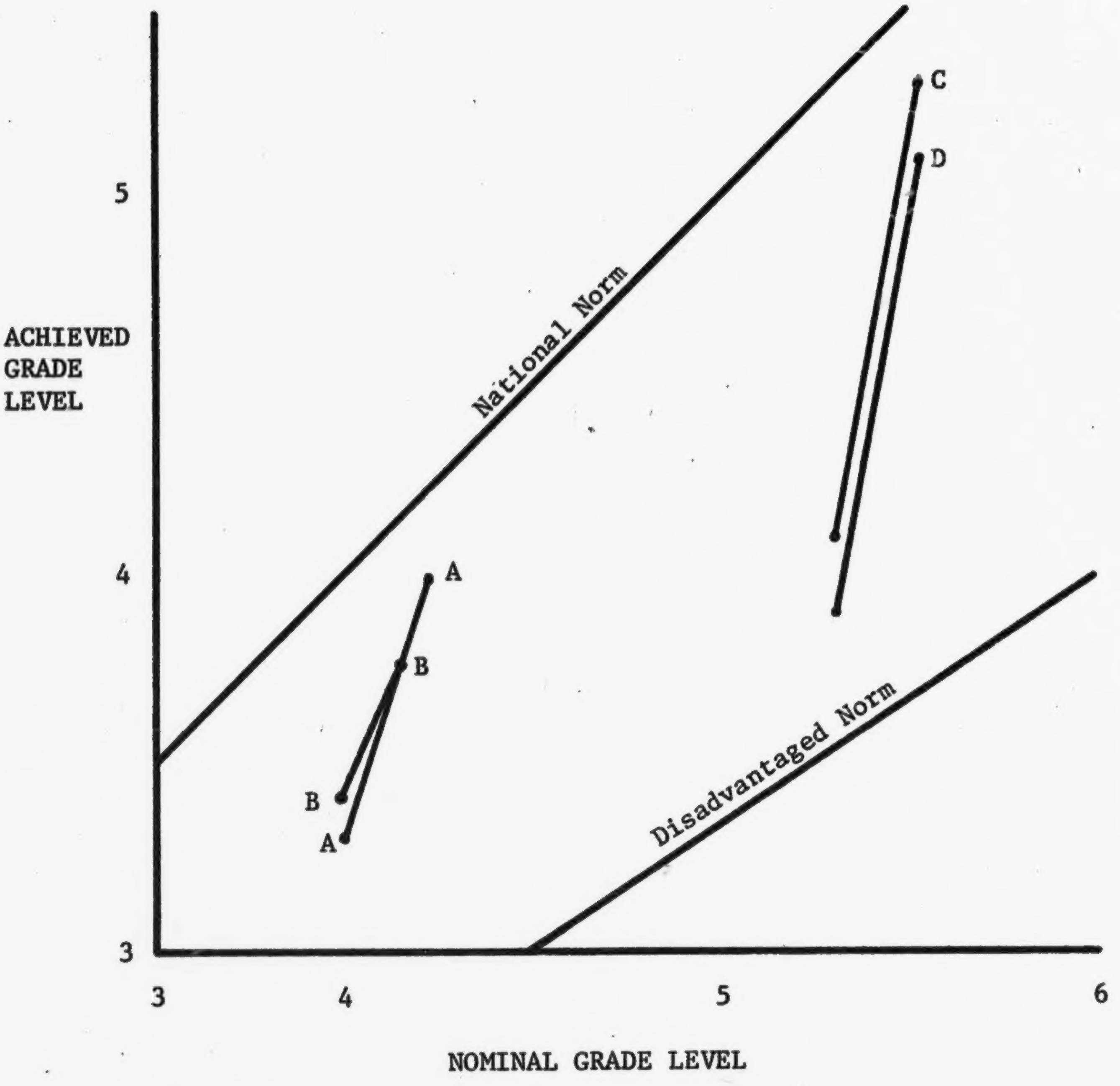
[c] Gains in all groups significant beyond the .002 level.

[d] Represents 73 percent of the total IRIT enrollment. No tests of significance calculated.

[e] All gains significant at or beyond the .05 level.

Diagram 5

REPRESENTATIVE GAINS IN READING AGE OF SAMPLES OF PUPILS IN THE IRIT PROGRAM 1967-68



A Eleven boys at Emanuel IRIT, Fall 1967
C Twenty-four girls at Ann St. IRIT, Winter 1967-68
B Twenty-five girls at Emanuel IRIT, Fall 1967
D Twenty-one boys at Ann St. IRIT, Winter 1967-68

Actual measured gains in reading achievement were calculated from the difference in mean grade equivalent scores between the beginning and the end-of-cycle tests. Mean grade equivalents were computed for each of the sub-tests and for the total test score and were analyzed using a statistical test of mean difference at the .05 level of confidence.

As indicated in the table, in practically all of the groups tested, the reading gains during the experiment were significant at or beyond the .05 level. The practical significance of these gains is shown graphically in Diagram 5. It can be seen from this graph that the growth in reading skills during this brief 6-10 week period approximates one school year in terms of grade-equivalent scores, as compared with a predicted 6-7 week gain for disadvantaged pupils over a/10-week period.

During the 1965-66 school year a study was conducted of the relationship between length of IRIT cycle (ranging from 6 to 12 weeks) and measured gains in reading achievement.

Average weekly gains in vocabulary, comprehension, and the total reading score as measured by the California Reading Achievement Tests were computed. These gains were analyzed using a statistical test of mean difference at the .05 level of confidence.

The findings showed no significant difference in growth of vocabulary, comprehension, or total reading achievement based upon variations in IRIT cycle lengths; therefore, no optimum length of cycle can be suggested.

A study was also made of the effects of IRIT instruction on the intelligence of a sample of 71 children as measured by the non-verbal section of the Lorge-Thorndike Intelligence Test. No significant gains in non-verbal IQ were indicated following the weeks of IRIT instruction.

Finally, as a preliminary step to the determination of a shift in emphasis from intermediate grade levels to the primary levels, a groups of 19 first-graders received IRIT instruction during the spring of 1968. The results showed that significant gains were made in word forms and word recognition; however, gains in letter recognition were minimal.

To determine the extent to which the gains from the IRIT carry over into the following school year, 92 children representing 24 percent of the total 1965-66 IRIT enrollment were retested in the spring of 1967 using Form Y of the California Reading Achievement Test. Mean grade equivalent scores were compared with the scores obtained at the end of the 1965-66 IRIT instructional period. As shown in Table 27, students in one school showed no significant changes in scores over the 7-month period, while significant gains in vocabulary, comprehension, and total reading continued to be made by students in the second school. Students from the third school demonstrated gains in comprehension and total score but not in vocabulary.

Table 27

MEAN GRADE EQUIVALENT SCORES OF IRIT STUDENTS FOLLOWING 7 MONTHS OF CLASSROOM PLACEMENT, SPRING, 1967

			Mean G.E.		
School	Measure	N	End of IRIT	Spring 1967	Change
A	Vocabulary	31	4.2	4.1	-.1
	Comprehension	31	4.2	4.1	-.1
	Total Reading	31	4.2	4.2	0
B	Vocabulary	35	3.8	4.6	.8*
	Comprehension	35	3.8	4.6	.8*
	Total Reading	35	3.8	4.7	.9*
C	Vocabulary	26	5.2	5.2	0
	Comprehension	26	5.3	5.9	.6*
	Total Reading	26	5.3	5.6	.3*

* Significant at the .05 level.

B. Other Evaluation Indices

In addition to the standardized tests, a number of surveys were conducted of parents whose children were in the IRIT, of classroom teachers, and of IRIT students. The vast majority of parents felt that their children had been helped by the IRIT both in reading and in their other classes, that they spent more time reading at home, and that they had enjoyed IRIT enrollment. Similarly, a large majority of classroom teachers surveyed during the 1966-67 and 1967-68 school years noted some improvement in reading skills, attitudes toward reading, and pupil attention span. A large majority of the 22 teachers responding to the 1967-68 survey also noted a positive effect upon classroom behavior; however, half of the 14 teachers responding to the 1966-67 survey reported no effect. Surveys of the students in the IRIT also indicated that a large majority felt they were helped in reading by the IRIT experience, that they liked the novelty of having three teachers and changing classes, and that they thought their parents were happy about their IRIT work.

Finally, the IRIT program served to provide assistance to classroom teachers in learning about new methods and techniques for teaching disadvantaged pupils.

C. Modifications and Suggestions

During the 3 years of IRIT operation, the basic essentials of the program have remained rather constant. The length of the instructional cycle has varied, however, between 6 and 12 weeks. The grade range of the pupils has also varied from grades three to six. For the 1967-68 school year, the major portion of the program was aimed at providing 9 to 10 weeks of instruction to pupils in grades four and five. A pilot project was also conducted during 1967-68, involving the application of the IRIT approach to first grade pupils.

Based upon the experience in this pilot program and the evidence from studies indicating the advisability of early detection and treatment of potential reading disabilities, the IRIT program will shift to first-grade pupils during the 1968-69 school year. As outlined in the project description for the 1968-69 (Hartford Public Schools, 1968):

a. Twenty-five to 30 first-grade pupils from the validated schools who give evidence of delayed readiness will be selected for the beginning reading language arts program. This will be based on kindergarten testing results and on teacher recommendation.

b. Pupils selected for the program will attend the IRIT the entire morning for approximately 12 to 14 weeks of instruction.

c. Pupils will return to their home school in the afternoon where they will receive instruction in other basic areas. Instruction in the center and in the sending school will be closely coordinated.

d. Each team will sub-divide the pupils into three groups who will receive instruction on a departmentalized basis in each of three areas - an enrichment area, a developmental reading instruction area, and a decoding, language arts area. Individualization of instruction will be an important goal of the program.

It is planned that the classroom teachers will be included as an integral part of the program and will work with the team in the coordination of the program. Also parent involvement will be emphasized and inservice programs for parents will be provided. Inservice programs for teachers on beginning reading instruction and pupil readiness will be continued.

Budget for 1966-67 school year

1	Project Director, Coordinator	Full-time
3	Reading Specialists	Full-time
6	Reading Teachers	Full-time
3	Clerk-typists	Full-time

Reading Materials, Supplies & Equipment	$6,000
Office Equipment	1,500
Office Supplies	2,100
Student Transportation	2,700
Telephones	411
Total operating costs during 1966-67 (does not include building rental, amortization of initial capital equipment, or miscellaneous supporting services such as art work and film processing).	$110,211

Approximate average per pupil costs for 10-week program $250

Inventory of Educational Equipment for One Reading Center:

1 Underwood Typewriter
1 Primer Electric Typewriter
2 Typewriter Tables
1 Thermo-Fax Copier
3 Overhead Projectors
1 Overhead Projector with Tach
2 Rolling Tables
1 Spirit Duplicating Machine with Table
1 File Cabinet - 4 drawer
4 File Cabinets - 2 drawer
16 Language Masters
3 Tape Recorders
2 Record Players
3 Filmstrip Projectors
1 Large Projection Screen
1 Small Projection Screen
7 Filmstrip Previewers
11 Junction Boxes
Language Master Cards - Phonics Series
    Blank Card Sets
    Word Learning Picture Series
    Language Simulation Series
Keystone Slides - Dolch Basic Sight Vocabulary
    Dolch Nouns
    Dolch Phrase Sentence Series
    Knipp Phraser Sentence Series
33 Headsets
1 Tape Splicer
15 Patch Cards
4 Extension Cords

Quoted Sources

Fraser, A. Flee-zees: A supplementary reader using homonyms. Hartford: Hartford Public Schools, 1967.

Hartford Board of Education. Evaluation 1965-1966 Project 64-1. Hartford: Board of Education, Research and Publication Department, 1966(?).

Hartford Public Schools. Project descriptions 64-1. State Act for Disadvantaged Children, 1968-1969. Hartford: Hartford Public Schools, Research Evaluation, 1968.

Hartford Public Schools, Ann Street Reading Center. Today's Negroes. Hartford: Hartford Public Schools, 1968.

Nearine, R. Where the action is. IRIT, 1966-1967: An evaluation. Hartford: Board of Education, 1967.

Nearine, R. Patterns for progress. IRIT: an evaluation, 1967-1968. Hartford: Board of Education, 1968.

Other Sources Not Quoted

Hartford Public Schools. In other words. Hartford: IRIT, Hartford Public Schools, Garden Street Center, May 1968.

Hartford Public Schools. Original poems - Grade 4. Hartford: Emanuel IRIT, Hartford Public Schools. (Undated).

The Reading Star (Ann Street Reading Center, Hartford Public Schools), 4 (5), 1968.

For More Information

Robert J. Nearine
Coordinator of Evaluation
Hartford Public Schools
249 High Street
Hartford, Conn. 06103

M. Beatrice Wood
Assistant Supervisor of
Reading Instruction
Hartford Public Schools
249 High Street
Hartford, Conn. 06103

THE AFTER-SCHOOL STUDY CENTERS OF NEW YORK CITY

Introduction

In this program, the school day was extended for many pupils by providing After-School Study Centers in which teachers taught small classes from 3:00 to 5:00 p.m. each day. The curriculum comprised chiefly remedial reading, remedial arithmetic, library training, and homework assistance, plus a Special Potential Development Service providing music, art, and health education.

The pupils were mainly Negro or Puerto Rican in grades two through six in several poverty areas of New York City, and were selected for voluntary attendance at the Centers on the basis of 1 year or more of retardation in reading or arithmetic. No pupils were accepted who were already receiving special remedial help in school.

The program was begun in 1964. In October 1964 there were 167 Centers in the schools. Between October 1966 and May 1967 about 30,000 pupils participated at least part time at the Centers, some 13,000 being in the remedial reading or arithmetic classes. All the Centers have been located in schools, mostly public.

An evaluation of the 1964-65 program showed that a sample of fourth-grade pupils enrolled in the reading program for 3 to 6 hours a week had made significantly greater gains in reading age than a control group from the same schools. The greater the pupils' attendance, the better their gains were. In the 1966-67 program, the pupils in the program showed significant gains over expected performance in reading at each grade level, second through sixth.

Personnel

A. Program Coordinators.

Apart from a general coordinator of the Centers, there was also a music coordinator and an art coordinator for the Special Potential Development Services.

B. Center Supervisors. (These were usually licensed assistant principals from the Centers' day school staff.)

The supervisors concerned themselves with adapting the program to meet the pupils' needs, with improving pupil attendance through the teachers and parents, with recruiting and training teachers, and with organizing and coordinating the activities of their Centers.

C. Teachers. (There were 951 teachers in the tutorial part of the program in 1966-67, more than half of them in reading. Most of these were experienced and licensed, but some were substitutes. A further 619 teachers assisted in the Special Potential Development Services that year.)

Each tutorial teacher was responsible for a small group of not more than 15 pupils who saw her three afternoons a week.

D. Secretaries. (One per Center for 4 hours a week.)

The secretaries' duties included the preparation of pupil and teacher attendance records and reports, service reports, curriculum materials, and correspondence. They also answered the telephone for their Centers.

Methodology: General

This description will include only the tutorial program, since the Special Potential Development Services did not aim at improving cognitive achievement in language and number. It is based chiefly upon the After-School Study Centers Review (Board of Education of the City of New York, 1965).

As might be expected when so many teachers were involved, a very wide variety of techniques was employed by teachers in the Centers, particularly to teach reading. No one method can be singled out as characteristic of the program. The ostensible purpose of this variety was to find a method suited to each child; such experimentation was needed since the pupils had not been successful when taught in the regular classroom.

There were class activities in reading, storytelling, and discussion. Remedial reading was handled both on an individual and a group basis. Word attack and vocabulary building featured prominently. Many centers prepared some kind of journal. Other language arts activities included word games, choral reading, play acting, and creative writing. In arithmetic classes the work was similar to that of the regular classrooms, emphasizing computation, fractions, percentages, interest, liquid measure, linear measure, and bar graphs. Manipulative games, models, and pupil-made measuring devices also were used.

The homework classes provided a quiet atmosphere for the children to do their work, with reference materials readily accessible both in the classroom and in the library. Many of the children attending these classes were the regular day-school pupils of the homework teachers.

In the library classes, there were story hours, book discussions, film shows, and the teaching of library skills. In story hours there were, besides oral reading, puppet shows based on selected stories, poetry reading, and the recording of children's stories.

Not all these activities occurred in every Center.

Methodology: Specific

Extracts from the After-School Study Centers Review already referred to will serve to illustrate several aspects of this program:

A. Each reading teacher has a set of SRA Reading Laboratories. These are used in conjunction with other materials but they are the principal resource around which the program is built.

These Reading Laboratories have many functions in the program: they instill a spirit of competition among the pupils; they permit each child to proceed individually; because of the turnover in the program a new child can begin without having to be placed in a particular group; there is practically no need for grouping as far as the Laboratories are concerned; they preclude the need for the teacher to make elaborate preparation of materials.

B. At the start of the year, students recorded on tape paragraphs from a story the group had studied. After a period of 2 months, a second recording was done of another story the class had read. The pupils praised their classmates for their improvement. The technique serves also as a good motivational device.

C. The group, under the teacher's guidance, discusses a corridor bulletin made by another class in the school. They read the title, phrases, and the compositions. The teacher makes a list of new vocabulary words which are placed on oaktag cards for review in the classroom. The pupils are highly motivated to read these displays as their friends and acquaintances quite often contribute to the bulletin board. In addition, this technique alerts pupils to the wealth of new words and "experiences" that surround them. The group, in turn, decides to make bulletin boards for display in the school.

D. I was able to order special materials for the reading groups. We are now enjoying them. They include such items as the Scott-Foresman word blocks "Rolling Readers" and the Dolch word games. These items serve to arouse much pupil interest. In addition, we play a great many oral games with the children in order to build vocabulary.

E. Activities that I have found particularly helpful include:

1. Reading Bee - from flash cards - two teams.
2. Phonics Bingo - we made cards by writing an initial sound of this word. When I call a word, they cover the initial sound of this word.
3. "Go Fish" - played in groups of four. Each child gets five picture cards. They ask other children for cards starting with a particular sound. The aim is to collect sets of four cards with same initial sound.
4. I have several word games that can be played in small groups. When children come in, they can use any of these games until full class is assembled.

F. These puzzles give the children practice in reading for comprehension. The meaning "across" or "down" is given, and the child must select the correct word from a list. The puzzles are a challenge to children and provide vocabulary enrichment. They can be used in related activities such as alphabetizing the puzzle words, checking the dictionary for other meanings, and using the words in sentences.

G. Original problems

a) Children write original problems and present them to the class for comment and criticism.

b) The teacher learns much about the maturity of a child's thinking by the kind of problem the child formulates.

c) Unless children receive very specific, definite directions, they tend to make up involved problems in story form. Usually they ask many questions and give many details.

H. The monthly library bulletin of our ASSC is used to stimulate attendance at the library itself and to further a love for reading and the habit of reading books regularly.

I. The last 10 minutes of the Homework Class, I try to give the children some cultural experiences.

I have taken some time to play victrola recordings. Some were by Mozart. The children became interested and used the school library to borrow a book about Mozart.

I have read "The Boyhood of Mozart" and told them the story of "The Magic Flute." I play a part of a victrola recording (a shortened version) of this opera each period. The children are becoming familiar with the characters and the underlying theme in the music.

My plan is for the class to participate in playing an "Air from the Magic Flute" - using the bells and the recorder for other passages.

J. The names of some Center journals:

News & Views
ASSC Express
Our After-School Study Center
Meet Our Friends
Class 5-2 Log : Sailing West
After-School Center
The Echo
The Striver

K. Since the homework assignments vary according to the grade level and the child, I find it most beneficial to work with the children on an individual basis. However, if several children are having the same difficulty, I work with them in groups and then individually. I try to start each session by reading a quotation and then discussing it or I open a discussion on a current topic or person in the news. If the children are writing a composition, I ask them questions that will lead them to think logically and thoughtfully.

L. In addition to the coordination sheet which day teachers have written, I have found short, informal meetings with teachers most helpful to me in working to meet the needs of pupils in my mathematics class.

Teachers have been willing to show me what they are teaching and how they are teaching mathematics in their classroom so that there is no confusion.

Evaluation

A. Measures of Achievement

Before any discussion of data relating to this program, it should be pointed out that pupil attendance at the Centers was entirely voluntary, therefore erratic. Comparatively few pupils tested had received full benefit from the treatment offered by the Centers. In this light the results are the more favorable.

During an evaluation of the 1964-65 program (Forlano and Abramson, 1967) the test scores of fourth-grade pupils enrolled in the remedial reading program at the Centers were studied. Experimental and control groups were established by pairing 1521 ASSC pupils with 1521 pupils from the same school on the basis of reading scores in April 1964. The groups were tested in April 1964 and again a year later; the results are summarized in Table 28, and depicted graphically in Diagram 6. The broad conclusion that may be drawn is that this sample of pupils, who were enrolled in the reading program for 3 to 6 hours a week, made significantly greater gains in reading age than the control group. The gains amounted to about 1 year in 1 year, as opposed to .77 of a year in 1 year for the controls.

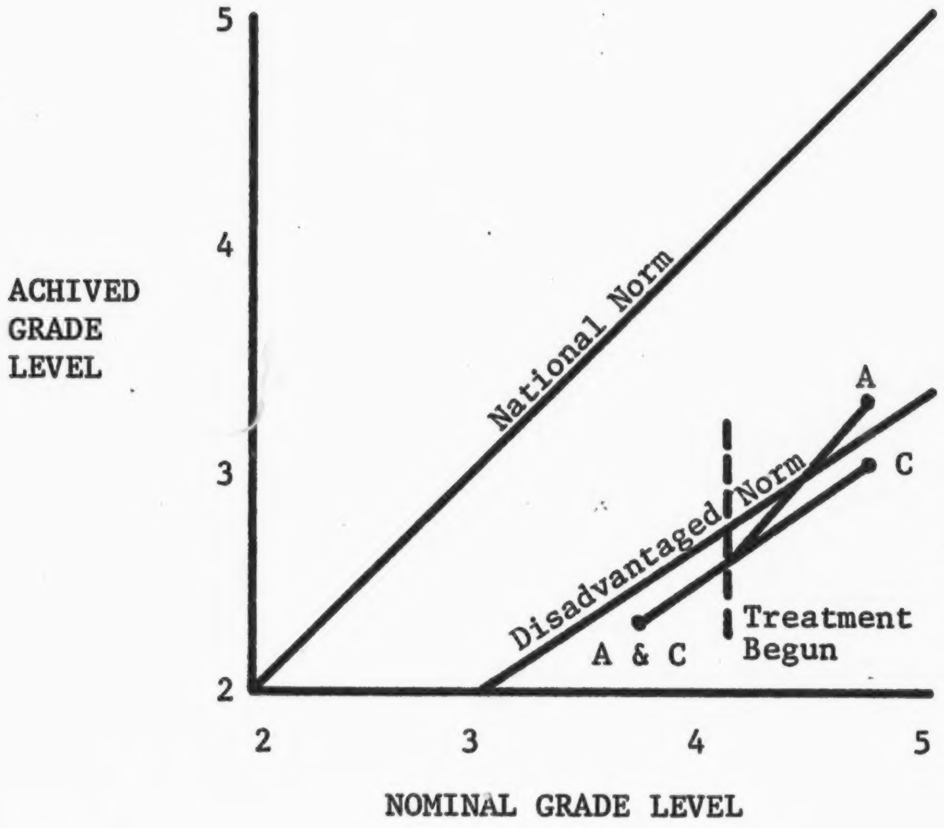
The 1964-65 evaluation undertook a number of other companions, all of which favored the ASSC pupils, usually at the 1% level of confidence. One such comparison showed that there was a positive relationship between attendance at the ASSC and achievement in reading. Another showed that pupils in non-ASSC schools in poverty areas made less progress than either experimental or control pupils in ASSC schools.

The 1966-67 evaluation (Lohman, 1967) as a whole paid relatively little attention to reading gains. From the figures provided, however, a number of conclusions may be derived on further analysis. Lohman reports the results of testing in grades two through six in October 1966 and again in April 1967. These are shown in Table 29.

The scores can be plotted graphically (see Diagram 7), and the October scores can be linked by a line of best fit to provide a suggested or projected norm for the ASSC pupils had they not attended the ASSC. It is then possible to compute the significance of the difference between the actual posttest mean and the expected mean had the group been untreated (for Grade 2, the difference between 2.6 and 2.0 equivalent grade level). In all grades, this difference proved significant beyond the 1 percent level of confidence, hence we may conclude that the ASSC provided measured benefits of cognitive achievement in reading.

Diagram 6

GAINS IN AVERAGE READING GRADE EQUIVALENTS OF TWO SAMPLES OF FOURTH-GRADE PUPILS BEFORE AND DURING THE AFTER-SCHOOL STUDY CENTERS PROGRAM 1964-65



A Experimental group
C Control group

Table 28

AVERAGE READING GAINS IN GRADE EQUIVALENTS FOR FOURTH-GRADE ASSC PUPILS AND CONTROLS, APRIL 1964 THROUGH APRIL 1965

	N	April 1964	April 1965	Gains	p
ASSC	1521	2.30	3.28	.98	.01
Controls	1521	2.30	3.07	.77	

[Source: Table 1, page 3, Forlano and Abramson (1967)]

Table 29

AVERAGE READING GAINS IN GRADE EQUIVALENTS FOR ASSC PUPILS IN GRADES TWO TO SIX, OCTOBER 1966 THROUGH APRIL 1967

Grade	N	October 1966	April 1967	Gains
2	94	1.6	2.6	1.0
3	372	2.2	3.1	.9
4	256	3.0	3.7	.7
5	384	3.5	4.3	.8
6	275	4.4	5.1	.7

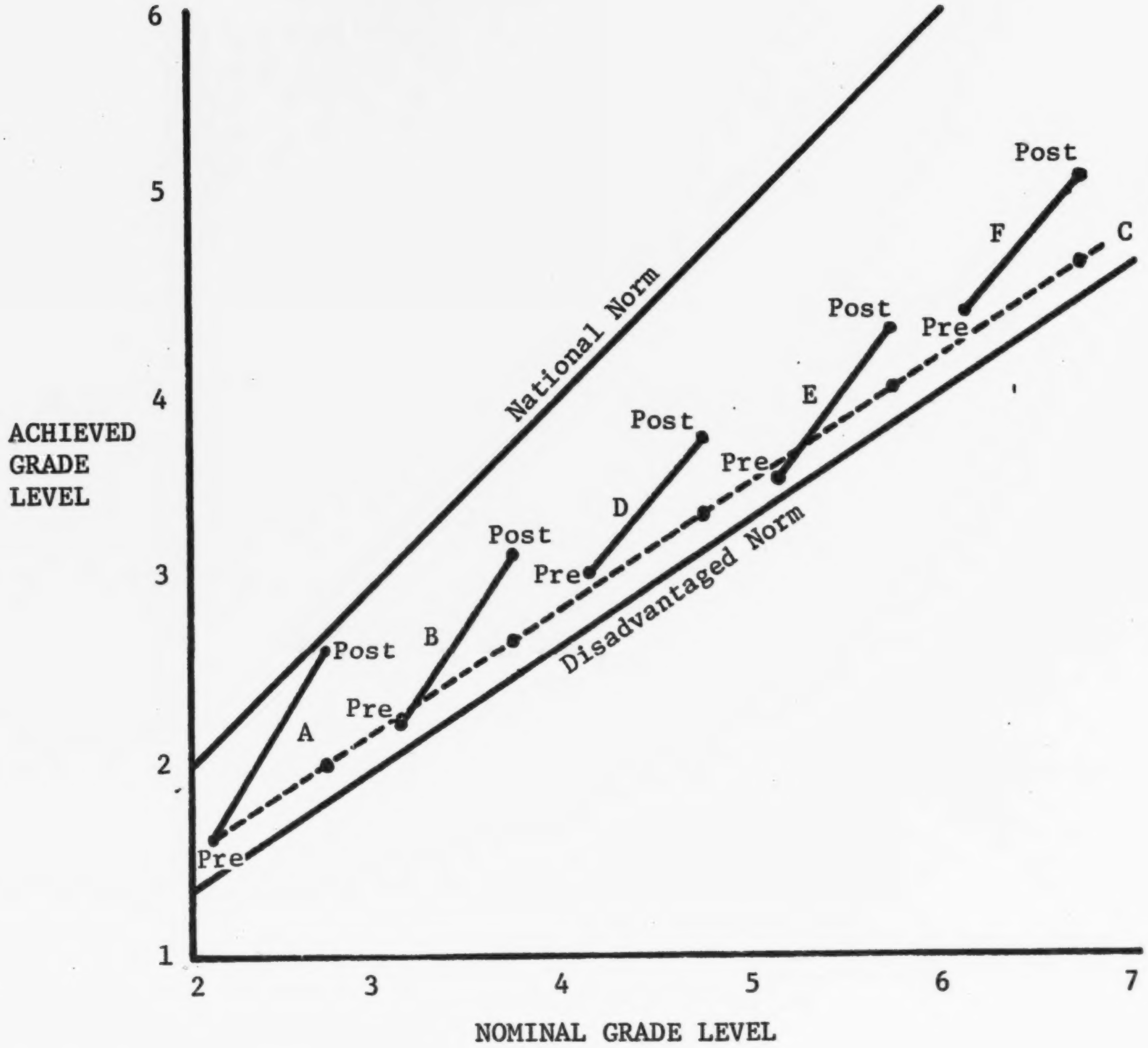
[Source: Table 4, page 19, Lohman (1967)]

B. Other Evaluation Indices

Lohman's 1967 report also examined the arithmetic, music, art, health education, and library aspects of the program, but not through quantitative methods. The opinions of pupils, teachers, supervisors, and administrators on the effectiveness of the program were also polled. The results of these evaluations were mainly highly favorable to the program.

Diagram 7

GAINS IN AVERAGE READING GRADE EQUIVALENTS OF PUPILS IN GRADES TWO TO SIX AT THE AFTER-SCHOOL STUDY CENTERS 1966-67



A Grade two sample
B Grade three sample
D Grade four sample
E Grade five sample
F Grade six sample
C Projected norm for untreated sample (see comments under Evaluation)

C. Modifications and Suggestions

Lohman's team suggested that school aides might be hired to relieve supervisors of some of their routine clinical duties and hall supervision. Staff conferences were suggested as a way of improving objectives, lesson plans, and program scheduling. More training of teachers for the areas they were teaching in the ASSC was recommended, especially for remedial reading. Diagnostic testing, beyond the city-wide annual program, would have assisted the ASSC teachers to give instruction more closely suited to pupils' needs.

Budget

To quote figures for the whole program is meaningless, since the number of centers and pupils has varied each year. Forlano and Abramson (1967) offer a cost per pupil per year of $70.61 for 1965-66; they point out that these are not actual expenses but budget figures.

Similarly, to quote totals of personnel employed is misleading. Rather, we should say that in one center there should be a supervisor, up to 12 teachers (typically), a part-time secretary, and provision for custodial services. A program coordinator would be needed where there were several centers.

A wide variety of audio-visual devices and instructional materials was available for use from the regular day school. Major items used in the program as materials were restricted to collections of books and games. A typical list follows:

1. Audio-visual aids - filmstrips and tape recorder, e.g.: "City Playground," "Johnny Goes to the Store," "Fun Park"
2. Reading games - commercial and teacher-made
   a. Unscramble cards to make a sentence
   b. Word drill fishing game with magnet
   c. Phonics games
3. Experience charts based on seasonal and current events and children's experiences

4. Mastery of Dolch Basic Sight Vocabulary of 220 words since these words make up about 60 percent of all ordinary reading matter

5. Illustrations from magazines to clarify meanings

6. Easy reading materials on a high-interest level and low-difficulty level
   a. Reader's Digest "Reading Skill Builder"
   b. Teacher-made xerographed materials

7. Pupil-made picture dictionaries

8. As a mathematics project, children used individual clocks and made clock's hands correspond to the time indicated by the teacher

The following filmstrips are specially recommended for use with the children in the reading study groups:

1. Adventures of Paul Bunyan
2. Buffalo Bill
3. Casey at the Bat
4. Cinderella
5. Ferdinand the Bull
6. Mike Fink - American Folk Heroes
7. Five Chinese Brothers, The
8. Folk Tales and Fairy Tales
9. Hickok, Wild Bill (American Folk Heroes)
10. How to Use the Encyclopedia
11. Johnny Appleseed
12. Johnny Fedora
13. Little Toot
14. Monkey See - Monkey Do
15. Mutiny on the Bounty
16. Pedro the Little Airplane
17. Rip Van Winkle
18. Robin Hood
19. Sleeping Beauty
20. Snow White and the Seven Dwarfs
21. Susie the Little Blue Coupe
22. Three Musketeers, The
23. Treasure Island
24. Willie, the Operatic Whale
25. Wonderful World of the Brothers Grimm

Quoted Sources

Board of Education of the City of New York. After-School Study Centers Review, Vol. 1, No. 1, Spring 1965.

Forlano, G. and Abramson, J. Measuring progress of fourth grade pupils enrolled in the remedial program in reading of the After-School Study Centers. New York: Board of Education of the City of New York, January 1967.

Lohman, M. The expansion of the After-School Study Centers for disadvantaged public and nonpublic school pupils. New York: Center for Urban Education, September 1967.

Other Sources Not Quoted

Cohen, H. Z. After-School Study Centers (Elementary). New York: Board of Education of the City of New York, June 1968.

For More Information

Mrs. Truda T. Weil
Acting Associate Superintendent
Division of Elementary Schools
Board of Education of the City of New York
110 Livingston Street
Brooklyn, N.Y. 11201

THE SELF-DIRECTIVE DRAMATIZATION PROJECT
OF JOLIET, ILLINOIS

Introduction

Very briefly, a procedure was developed at Joliet, Illinois, in which a normal school class will form groups of five or six, each composed of children who have found a common interest in one of a number of books or stories made available to the class. Each child in the group selects a character from the story to portray, and each group selects, for the occasion, a leader to help organize the group and to serve as a liaison with the teacher should the occasion arise. Though reading is involved, "self-dramatization" is more than a play-reading; and though dramatization and acting are called for, it is less than a play; no props or costumes are used.

The two investigators developed the rationale and procedure, and then set out to test their hypotheses. There were two studies. In the first relationships of self-directive dramatization, self-concept changes, and reading achievement with middle-class pupils were examined, and in the second, culturally disadvantaged pupils were used.

First Study (all pupils white, mostly middle-class)

1. Twenty-two pupils in grade 3, enrolled in a small laboratory school; the majority were of upper middle-class socio-economic level, but the range was from low to upper levels.
2. The same 22 pupils in grade 4.
3. Thirty-two pupils in grade 3, mostly lower middle-class socio-economic level in a public school of a large city. (Method of sampling not given.)
4. Twenty-four pupils in grade 7, mostly middle-class youth in a laboratory school (not the same school as in 1 above. Sampling method not given).
5. Nineteen pupils in grade 2, mostly farm children in a rural school.
6. Twenty-six pupils in grades 5 and 6, middle-class, in a public school in a large city, heterogeneous in race.

Second Study (predominantly Negro, low socio-economic status)

This was the more important of the two, particularly since control groups were used for comparison purposes. All experimental groups were drawn from a single small public elementary school serving culturally disadvantaged children from a large city. Sampling was done by selecting complete classes. (There was no grading between classes at the same grade level.) Control groups were made up from the remainder of the school, supplemented from a second school with a similar population.

1. Twenty-six pupils in grade 1.
2. Twenty-seven pupils in grade 2.
3. The same twenty-seven pupils in grade 3.
4. Twenty-five pupils in grade 3.
5. Twenty-nine pupils in grade 4.

The school population was from a low socio-economic level, 85 percent Negro, 10 percent white, and 5 percent Mexican and Puerto Rican. "A great many of the children were inadequately clothed and poorly nourished (Carlton and Moore, 1968, p. 62)."

In both studies, children dramatized stories from three to five times a week throughout the dramatization period of 3 1/2 months (continuous). There were two such periods in the year.

There was no specific oppostion from parents, though in the second study there was general antagonism from pupils and parents initially, disappearing early in the classroom and later in the community.

In the first study, gains in reading ability and in self concept over the duration of each self-dramatization period for each group were measured, tested against a null-hypothesis, and intercorrelated.

In the second study the same analyses were done; but in addition, gains by the experimental groups were compared with those of corresponding control groups where possible (a more meaningful comparison).

In all groups, normal schoolwork proceeded whenever self-dramatization was not in progress.

Personnel

A. Project Directors (Part-time; Ph.D.'s; professors of education.)

They designed and supervised the project and trained teachers in special methods used. They collected and analyzed data and were joint authors of several publications.

B. Four teachers, all qualified, three of them experienced and two of these with experience in these methods. Three women, one man. All had had inservice training, and performed normal teacher's duties.

In addition, each supervised self-dramatization of stories, gave reading instruction and reading tests as well as giving self-concept scores to each pupil in their care.

C. The remainder of school staff was indirectly involved since the control groups were from other classes.

All teachers gave normal classes when self-dramatization was not in progress.

Methodology: General

These observations and hypotheses form the foundation upon which the project rests:

1) "... culturally disadvantaged children ... fall behind children without this handicap(,) in educational achievement (Carlton and Moore, 1968, p. 60)."

2) "The lack of a desire to achieve and emotional problems are most often given as the cause for the lack of achievement of culturally disadvantaged children (Carlton and Moore, 1968, p. 60)."

3) "He who values himself highly will strive for high goals while he who has a low opinion of himself will be content with mediocre attainments (Symonds, quoted by Carlton and Moore, 1968, p. 7)." and

"An inadequate concept of self is crippling to an individual (Kelley, quoted by Carlton and Moore, 1968, p. 6)."

4) "The change which occurs in the child as a result of non-directive play therapy experience is a change in self-concept (Bills, quoted by Carlton and Moore, 1968, p. 5)."

5) Carlton and Moore suggest that their method of using books and small groups provides at one and the same time a form of non-directive play-therapy, a crucial area for change in self-concept and a direct and important goal for which to strive - better reading ability. (Carlton and Moore, 1968, pp. 9, 10).

6) Reading ability is obviously basic to learning all other subjects and at all stages of the educational process.

Therefore the claim that Carlton and Moore set out to test, starting with culturally disadvantaged children, was:

Self-directive dramatization → therapy for emotional problems + reading practice → improvement in self-concept and reading ability → increase in desire to achieve, and for higher goals → new leverage in other directions → greater successes.

A brief glossary may be helpful.

Self-directive. The positive aspect of "non-directive;" the teacher maintains an unobtrusive presence but encourages the pupil to make his own decisions and choices - within the framework.

Dramatization. *Not* play-reading, nor amateur theatricals. "Self-directive dramatization of stories ... is the pupil's own original imaginative spontaneous interpretation of a character of his own choosing in a story which he has selected and read co-operatively with other pupils in his group which was formed for the time being and for a particular story only (Carlton and Moore, 1968, p. 10)."

Self-Concept. "Involves what an individual thinks he is, what he thinks he can do, what he thinks he cannot do (Carlton and Moore, 1968, p. 11)."

Before starting the study, a group intelligence test (California Short Form Test of Mental Maturity), and a reading achievement test (Gray - Votaw - Rogers Achievement Test) were applied. Results from these were used in the second study, after selection of the experimental groups, to draw individuals from the remainder of the pupils in the Joliet school and from another, to match individuals in the experimental group; sex was an additional matching variate. Control and experimental groups were then checked for significance of differences in socioeconomic status.

Also before starting, all pupils in the experimental group were scored on self-concept questions, all of which were put in negative form so that reductions in scores later would indicate self-concept improvement. This check-list was specially devised; here are examples of the items (Carlton and Moore, 1968, pp. 25-27):

A. Associated with Others
  1. Does he withdraw from the teacher?
  5. Does he try to gain favor by agreeing, by giving gifts, or through flattery?

B. Attitude Toward Himself
  2. Does he "brag" about what he can do?

C. Attitude Toward Others
  4. Does he want to do all the talking?

D. When Things Do Not Go Right
  6. Does he act impulsively - hit someone, cry?

E. In Daily Routine
  2. Is he unwilling to take turns?
  7. Does he try to "boss" the other children?

This self-concept check-list marked for each child by his teacher and where possible by other observers.

All measures were taken for both experimental and control groups and were repeated at the end of the first experimental period of about 3 1/2 months; these posttests also served as pretests for the second period, at the end of which all measures were applied for the third time.

The only special materials used consisted of about 200 books in all, containing stories suitable for each grade level, there being a few score books for each level. Although for a start these were fiction, there were also factual, biographical and historical books.

To get children started, the teacher selected about five stories for a class of 25 to 30 pupils, with varying reading levels; she listed these and the characters involved on the chalk-board in order to demonstrate the procedure to be followed without her help thereafter. Each pupil then selected the story he wished to read with others in a group; the number of characters involved determined the size of the group. There would be five or six such groups who then gathered in different parts of the room, and pupils took turns at reading parts of stories aloud until the story had been read. Each pupil then selected the character he wished to portray when the story was dramatized. Conflicts in choices were resolved by the children themselves. Groups then took turns in dramatizing the story for the rest of the class. No rehearsals, costumes or props were used, and a leader was chosen in each group anew for each story. This leader helped in organization and prompting, and he called for help from the teacher in pronunciation, or for any other problems which the children could not solve for themselves. On all occasions after the first, children went through the whole process of selecting stories, grouping themselves, selecting characters, choosing a leader, resolving conflicts, etc., with minimal assistance from the teacher. However, especially after a child had requested it and high-lighted the need, children were given opportunities to read to the teacher, who was concerned to do remedial work where necessary.

Methodology: Specific

Examples of stories (and books) used are (see Carlton and Moore, 1968, pp. 110-131):

Grade 1: Merry-go-round, "The Little Red Hen," Charles E. Merrill Publishing Co.
Up and Away, "Pails and Pails of Paint," Houghton Mifflin Company.

Grade 2: Friends and Neighbors, "City Mouse and Country Mouse," Scott, Foresman and Co.
Come Along, "Traffic Policeman," Houghton Miffling Company.

Grade 7: Parades, "The Story of Penicillin," Scott, Foresman and Co.
High Trails, "Mama and the Graduation Present," Allyn and Bacon Inc.

Evaluation

A. Measures of Achievement

There are a few dubious elements in the reporting which should be got out of the way first, since, if anything, they cloud an otherwise clear issue.

In the first place, a positive and healthy concept of self holds an important place in the rationale and probably rightly so. However, the items used are at best indirect indices, calling for subjective decisions. Correlations between gains on this measure and those on reading reached high values (about .7) supporting the hypothesis in the first study - and zero or even negative values in the second where confirmation was needed more urgently. An assumption of poor validity for this test instrument is all that is needed to simplify the evaluation; gains in reading ability are real enough.

Secondly, the investigators relied on significance testing of gains in reading ability, a great deal in the first study and in part in the second. But demonstration that a gain is too large to be a chance deviation from zero gain is at best an argument for education, not for a particular method. Fortunately the data was presented fully enough to permit of more rigorous testing, and these figures will be quoted in preference.

Lastly, the control groups in the second study were gathered by selecting individuals out of the remainder of the classes in the original school and from a second school adjudged similar; these individuals were selected to match those in the experimental groups on four aspects simultaneously, namely grade, sex, pretest reading ability, and IQ. On the face of it this is quite a rigorous way of providing comparable control groups, but it includes a false assumption made only too often by educationalists, and that is that matching on IQ cannot increase biases in sampling, but can reduce them. In fact, it _can_ introduce systematic biases if the two groups are not _randomly selected_ from the same population; this should be immediately obvious when it is realized that children with different chronological ages paired on IQ will automatically have different mental ages or capacities. Notice that there is _no_ saving clause in a claim that modern "standard deviation IQ's" (e.g.,WISC) and not the older ratio IQ's (e.g., Stanford-Binet) were used. The correct variates to use are chronological age and mental age, _or_ the product of chronological age and IQ, _or_ raw score on the test; both are important and _must_ be kept separate.

In this case, biases introduced are almost certainly negligible, but such grounds for suspicion should be avoided in future replications.

In the first study, in all grades, on every occasion, posttest scores exceeded pretest values, gains being significant at beyond the 1 percent levels. As already pointed out, these are relatively trivial demonstrations; in fact this study is not a particularly valuable contribution anyway. However, on the assumption that normal progress over a 3 1/2 month period would have been .35 of a grade-year, gains in grade 3 and grade 4 were still significantly beyond this value at beyond the 1 percent level.

Data presented for the other grades in this study are not given in a form which allowed us to compute the more appropriate values. Common sense, using the t-values given, leaves no room for doubt that each self-dramatization period in each grade led to gains which exceeded expectations at highly significant levels.

What does temper our enthusiasm is that the mean IQ's of these groups exceeded 100, and by perhaps enough to account for the high gains.

The second study is more important and more convincing even though, as mentioned earlier, the self-concept test proved disappointing.

The grade 2 class had two self-dramatization periods; in both, the gains exceeded the expected .35 grade years by far more than would have yielded significances at even the 0.1 percent level; and expectations for these children would have been less than .35 grade years.

The overall gain in reading ability for the two periods exceeded that of the control group by more than 1/2 a grade year, and significant at beyond the 0.1 percent level.

The same two groups were compared on gains in other subjects (arithmetic?). The difference favored the experimental group at beyond the 1 percent level (value re-calculated).

Finally, this grade was followed to grade 3 to test the performance of gains in reading, spelling, and arithmetic. Gains exceeded the expectations of 2 grade years by enough to claim significance at beyond the 0.1 percent level in each case.

For all other comparisons of gains in reading ability between experimental and control groups in grades 1, 3, and 4, the experimental group was superior at never less than the 2 percent level.

B. Other Evaluation Indices

Although the principal aim of the study was to perform a fairly rigorously controlled experiment to test objectively the contributions to several criterion variates of a single component of treatment, there were by-products which the authors found convenient to illustrate anecdotically; a few are appended:

1. At the beginning of the year, in all classes, a large proportion of children could not sit still, seemed to be excitable, talking continuously but with few listeners; were quarrelsome and aggressive and resistant to approaches. There seems to have been a fair amount of antagonism directed towards all teachers. This gradually improved so that before long enthusiasm was being shown for the program in general and each teacher in particular. One child who quite literally cried all the time in spite of every attempt to soothe her, eventually gave up crying and took her place in the program. Another who in the beginning used to call out to the teacher "You old white woman, you leave me alone," changed this later to "You old black woman ..." and finally signalled her complete acceptance by addressing a friendly and enthusiastic letter to the investigators.

2. Changes in individual self-concept were sometimes striking. One boy with an IQ of 140 with a reading level of only 1.8 in third grade refused to play with other children at the start, or to join in their reading groups. When he did join, at first he elected to play bad and aggressive characters and did so with an energy which amazed the teacher. He suddenly changed to portraying a different type of character, and by the end of the dramatization period showed a self-concept change from 13 negative indications, down to two, and had a reading gain of 1.0 years.

3. Approval of parents and the community in general was shown by consent to have a book illustrated with photos of some of their children; also by an imperative demand by one of the rough diamonds of the community, that if the two authors were not back to continue their work the following year, he would come to fetch them!

C. Modifications and Suggestions

In discussion, the investigators suggested little in the way of needed alterations to procedure, but rather "more of the same":

Longer periods
More books
More direct teacher preparation
Longer research period, and above all -
More financial support.

They would like to study the effects of class size, more contact with the parents, and of supplementary feeding.

Budget

The total cost of the program was nominally about $7,400, of which about $3,000 was spent on salaries, and another $3,000 on instructional material. The remainder was absorbed in travel, clerical and testing costs. Teachers were on regular employment, and overhead costs were absorbed by institutions involved.

Quoted Sources

Carlton, L. and Moore, R. H. Research summary. A study of the effect of self-directive dramatization on the progress in reading achievement and self-concept of culturally disadvantaged elementary school children. Normal, Illinois: Illinois State University, September 1, 1964-August 31, 1965.

Carlton, L. and Moore, R. H. A study of the effects of self-directive dramatization on the progress in reading achievement and self-concept of culturally disadvantaged elementary school children. Normal, Illinois: Illinois State University, September 1, 1964-August 31, 1965.

Carlton, L. and Moore, R. H. Reading, self-directive dramatization and self-concept. Columbus Ohio: Charles E. Merrill Publishing Co., 1968.

Other Sources Not Quoted

Moore, R. H. and Carlton, L. Teaching of reading to culturally disadvantaged children. Illinois Elementary Principal, May 1966.

Moore, R. H. and Carlton, L. Effectiveness of self-directive dramatization in teaching of reading to culturally disadvantaged. ISU Journal, December 1965.

Moore, R. H. and Carlton, L. Culturally disadvantaged children can be helped. NEA Journal, September 1966.

Moore, R. H. and Carlton, L. The effects of self-directive dramatization on reading achievement and self-concept of culturally disadvantaged children. Reading Teacher, November 1966.

For More Information

Dr. Lessie Carlton
Department of Education
Illinois State University
Normal, Illinois

Dr. Robert H. Moore
Department of Education
Illinois State University
Normal, Illinois

THE MORE EFFECTIVE SCHOOLS PROGRAM
IN NEW YORK CITY

Introduction

The More Effective Schools project brought about a large scale reorganization and expansion of the teaching and administrative staffs of the elementary schools of New York City. This was an effort to render the schools more effective in solving the basic language and mathematics problems of disadvantaged urban children.

The combined Negro-Puerto Rican population in all project schools was greater than 50 percent of the total school population. All classes in the prekindergarten through sixth grades were heterogeneously grouped.

The project was initiated in September 1964 in 10 New York City schools; the following fall an additional 11 schools joined the program. These 21 schools were chosen because their student populations had the severest language handicaps in the school system. The total number of children participating in the program in any single year after September 1965 was approximately 16,600.

Benefits claimed in language and math achievement as measured by standardized tests are conflicting due to the variety of evaluation designs employed. The several interpretations of the data are included in this report.

Personnel

A. Centralized Administrative Staff. (Two to five in number; full-time; usually assistant superintendents or assistant principals.)

They coordinated the activities of all 21 MES schools.

B. Principals. (Twenty-one in number; full-time; licensed by the Board of Education of New York City.)

They supervised projects in their respective schools.

C. Administrative Assistants. (Twenty-one in number, full-time.)

They assisted each principal by organizing and scheduling duties, and handling paper work.

D. Assistant Principals. (Sixty-three in number; full-time; usually three to a school; licensed by the Board of Education of the City of New York.)

Each assistant principal supervised one of the following: pre-kindergarten to grade two, grades three and four, or grades five and six; they conducted inservice teacher training, arranged parents' meetings, prepared monthly reports, and ordered supplies.

E. Pupil Personnel Team. (Twenty-one teams; one per school.)

1. Guidance Counselors. (Sixty-three in number; full-time; there were three per school; licensed by the Board of Education of the City of New York.)

2. Psychologists. (Thirteen in number; full-time; licensed by the Board of Education of the City of New York.)

3. Social Workers. (Full-time; minimum requirement of a Master's degree; licensed by the Board of Education of the City of New York in social work.)

They worked directly with the families of the pupils.

4. Attendance Teachers. (Full-time; usually qualified as social workers; licensed by the Board of Education of the City of New York.)

They visited the homes of pupils who were absent.

F. Psychiatrist. (Several; part-time.)

They dealt with pupils referred to them by the pupil personnel team.

G. Speech Improvement Teacher. (Twenty-one in number; full-time; one per school; licensed by the Board of Education of the City of New York.)

They trained teachers, provided demosntrations and assisted in team teaching.

H. Community Relations Coordinator. (Twenty-one in number; usually one per school; licensed teachers with demonstrated ability in the field of human relationships.)

They built a viable parents' association; they coordinated the school's program in the area of special service workshops, and directed other programs in which parents, school, and community were mutually involved.

I. Classroom Teachers. (About 300 in number; full-time; licensed by the Board of Education of the City of New York.)

J. Other Teaching Positions (OTP's) and Special Teachers. (One hundred and forty-seven in number; seven per school; full-time.)

They were selected by the principal to best meet the needs of the school in the following areas: library, reading instruction, corrective reading, art, music, audio-visual, science, language resource, and health education.

K. Secretaries. (Three to five per school; full-time.)

In addition to the above personnel, each school employed a group of aides who were uncredentialed and received an hourly wage. They assisted classroom teachers, the office staff, and the audio-visual staff. In a single year their assistance amounted to approximately 6,515 hours per school.

Methodology: General

It was the aim of the project to design an educational system which would focus on prevention of academic failure in the early years by starting education at the prekindergarten level, organizing small classes, hiring special subject teachers and a clinical team for each school, reorganizing classes into heterogeneous groups and providing intensive teacher training in the strategies of team teaching and non-graded instruction.

The specific project goals were (Fox, 1967):

1) To produce a measurable effect on pupil growth in reading and mathematics.

2) To create a learning climate characterized by enthusiasm, interest, and the belief among all levels of staff that they were in a setting in which they could function effectively.

No actual curriculum innovations were attempted on a program-wide basis. They were left to the initiative of individual teachers.

A description of the main features of the program follows.

A. Prekindergarten and Kindergarten Education

In an effort to teach the basic skills necessary to the acquisition of more sophisticated cognitive abilities, a prekindergarten program was offered to three- and four-year olds. The major goals of this program and the kindergarten program were 1) to develop desirable social attitudes and a sound self-image; 2) to develop oral communication skills basic to reading and other language art skills; 3) to foster independence in beginning research skills; 4) to extend gradually oral communication skills into meaningful written communication; 5) to develop numerical concepts basic to the understanding of mathematics; 6) to develop concepts basic to the understanding of other curriculum areas.

Prekindergarten children attended school a half day; kindergarten children, a full day. The classrooms were arranged into interest centers by grouping furniture and curriculum materials into areas that were meaningful to the children such as 1) Family Living; 2) Language Enrichment; 3) Math Experimentation; 4) Creative Arts; 5) Blocks; 6) Science; 7) Table Games and Toys.

Although the physical plants of the prekindergarten and kindergarten programs resembled each other in arrangement and composition of the raw materials of learning, the teachers used the classrooms differently. Prekindergarten children spent the larger part of the day exploring and experimenting with the materials. The kindergarten children were made to rely on the basic "doing" experiences of the prekindergarten years as a springboard for the sharing, recalling, and recording activities of the kindergarten program. The curriculum materials were evaluated and then chosen for the academic stimulation which they provided.

Teachers were expected to design the curriculum sequencing activities and the concomitant learning skills required to pursue effectively the activities.

A typical day in kindergarten would be divided into the following blocks of time, not necessarily in this order:

1) Experience with Raw Materials

2) Story Time

3) Music

4) Lunch and Rest

5) Planning and Discussion Groups

6) Outdoor Play

7) Trips

During all these blocks of time, the children worked in small groups rather than as one large class. One adult would direct or supervise each group.

The teacher played a key role in individualizing the instruction in these groups, by the nature of her questions. A child in the early stages of experiencing an activity would be asked to describe the concrete characteristics of a certain phenomenon; the child in a later stage of growth would be asked to abstract information from the same phenomenon. This role of the teacher made it necessary for her to know the learning stage which each child had reached and how best to capitalize on it in a group situation. For example, during a discussion about a particular photograph, one child might be asked to name objects in the picture, another child might explain what was happening, and a third child might be asked to project and tell what had happened before and what might happen next.

B. After School Study Centers

When the regular school session ended at 3:00 p.m., the buildings remained open until 5:00 p.m. for the After School Study Centers. The programs of these centers, tailored to meet individual needs, provided remedial, tutorial, library, and enrichment classes. The centers were staffed by regular school faculty and were paid for by funds provided by the Office of Elementary Education.

C. Class Size and Pupil/Teacher Ratio

In an effort to insure individual attention to each child's needs, MES reduced class size: a maximum of 15 pupils was mandated in prekindergarten, 15 in first grade, 20 in second grade, and no more than 22 in grades three to six. In comparison, the average class size in New York City schools prior to MES was 28.6 students.[2]

A second indication of the effort to reduce pupil/teacher load was an increase in the school's complement of staff. This resulted in a pupil/teacher ratio of 12:3. Prior to MES the ratio was 25:1; in control schools the ratio was 21:1.

4

Average class size and pupil/teacher ratio were not the same. The difference arose from the fact that not every teacher assigned to a school was in charge of an organized class. Pupil/teacher ratio was computed by dividing the total pupil register of a school by the total number of authorized teaching positions in the school. Average class size was computed by dividing the pupil register by the number of organized classes in the school.

D. Heterogeneous Grouping

Grouping by class was done in a random manner to insure complete heterogeneity of abilities and personalities. Within classes, grouping was done by levels of achievement in various curriculum areas and according to special needs.

E. Innovative Teaching Methods Employed

All 21 schools used team teaching in order to make maximum use of the talents of their regular and special teachers. Each MES school had a team of four teachers for every three classes. This method was utilized on all grade levels and in all subject areas. The teachers met one period a week for a planning session.

One school used the non-graded block method of instruction for five- and six-year olds.

F. Extra Teaching Materials Supplied

Each school received its normal quota of supplies and then had these supplemented.

G. Provision for Children with Special Needs

To meet the needs of children with physical, emotional, and social problems, a teacher-guidance-medical team operated in each school. In addition to the teachers, the following personnel were available to each MES school: three guidance counselors, one social worker, one psychologist, one attendance teacher, and one part-time psychiatrist.

H. Use of Modern Equipment

A complete range of audio-visual equipment was used by all MES schools. This included the following: 16 mm sound motion picture and film strip projectors, film strip viewers, overhead projectors, slide and opaque projectors, tape recorders and phonographs with earphones and connection boxes, radios, and television receivers and cameras. Special emphasis was placed on using texts and other materials which stressed urban backgrounds and dealt with city children of varied racial and economic backgrounds. Closed circuit television was used in one school for direct teaching beamed to six classrooms. The availability of such resources was closely associated with intensive teacher training by an audio-visual specialist.

I. Teacher Specialists

Among the schools in the MES program the following numbers of specialists were used to enrich instruction:

Specialist	Number
Art	14
Music	19
Industrial Arts	2
Community Coordinator	21
Reading Improvement Teacher	13
Corrective Reading Teacher	19
Administrative Assistant	21
Audio-visual	21
English Language Resource	15
Librarian	21
Health Education	20
Science	8
Health Counselor	17

J. Instructional Emphasis

Prime emphasis in all grades was placed on the improvement of language skills in general and reading ability in particular.

K. Staff Morale

Personnel were recruited on a voluntary basis by applying for positions in the MES program. A democratic climate was maintained by means of regular meetings between and among teachers and other professional staff members and the United Federation of Teachers.

L. Professional Growth

Some provision was made for the professional growth of the MES staff. At a cost of $195,468 an orientation program for teachers and supervisors was implemented. In addition, inservice courses were offered in Early Childhood Education. Yeshiva University provided 14 scholarships for teachers at one MES school; Brooklyn College provided a seminar for all MES assistant principals; Teachers College provided an internship program at one school; and the Board of Education and cooperating colleges planned a series of inservice courses and seminars for teachers and supervisors of the program.

To provide for improvement of undergraduate teacher preparation, joint programs were established between MES and the following colleges and universities: Brooklyn College, City College of New York, Queens College, New York Medical College, Yeshiva University, and Long Island University.

M. Teacher Load

To allow teachers maximum time for concentration in instruction, each was provided a daily unassigned preparation period. A provision for relief from non-teaching duties was largely, but not completely, implemented.

N. Community Relations

The following are some of the specific responsibilities assigned to the Community Relations Coordinator: help plan Parents' Association meetings; conduct courses for parents (School Curriculum, Leadership, Spanish, Human Relations); enlist parent volunteers for activities; prepare survey of community resources for utilization by the school.

Evaluation

A. Measures of Achievement

The Metropolitan Achievement Tests in reading and arithmetic were used, in alternate forms, for a regular series of twice yearly testings of pupils in the More Effective Schools, and also in control schools. In a separate study of first-grade reading achievement in MES, the word-recognition subtest of the Gates Primary Reading Tests was used.

The results of the Metropolitan testings have been used in two contradictory evaluations of the MES program, each using a different basis for assessing measured benefits of cognitive achievement.

Fox (1967) was responsible for an evaluation which based a verdict of no benefits chiefly upon a comparison of the same schools' reading and arithmetic achievement profiles before and after the introduction of the program. Fox and his team saw no consistent trend towards improvement.

Forlano and his associates (Forlano and McClelland, 1966; Forlano and Abramson, 1968) evaluated the program too, and reached the conclusion that reading achievement in MES was indeed superior if MES were compared longitudinally with control schools matched on ethnic background.

In both evaluations, the verdicts were based on median scores rather than means. The median, as is well-known, is a less efficient statistic than the mean. Should the treatment provided in the program be more or less appropriate for any single homogeneous group in the sample (e.g., Negroes), the use of the median may either disguise or exaggerate this. In other words, if there is a bimodal distribution on some important quality, changes in the median may conceal or exaggerate its influence. Since the medians were used, however, in both studies, tests of significance should have been applied. In the Fox evaluation, no account was taken of the changes of student population in New York, where mobility rates run as high as 75 percent in some schools. Hence it is likely that the test medians used refer to different samples of students from one testing to the next, with differing exposure to MES. The exact effects of this mobility on MES and the control schools cannot be determined.

In the Forlano and Abramson (1968) report, mobility was eliminated as a factor by studies of pupils who had remained continuously enrolled in MES and of those who likewise had been continuously enrolled in the control schools. This technique enabled the evaluators to draw the conclusion that increased exposure to MES treatment increased achievement. The report was criticized by Gordon for not being specific enough about the basis for matching groups, but Forlano has shown that the groups were in fact carefully matched.*

Tables of certain data from the two evaluations are presented below as supporting evidence, together with graphical representations and comments on each.

First, Fox shows the profiles of each grade's October and May reading achievement scores in years before and after the commencement of the Old (1964) and New (1965) MES. These are represented in Tables 30 and 31 and Diagrams 8 through 11. Total grade group norms were used in calculating the medians, thereby raising the figures by 1 or 2 months, compared with modal age norms. Certainly the profiles show little consistent pattern. Quite considerable variations, both positive and negative, seem to have occurred concurrently with the introduction of MES. Since there is no comparison made with control schools in these tables, we do not know whether such fluctuations are characteristic of New York City schools.

Fox and his team also draw comparisons between eight ME and eight officially designated control schools, using median reading scores from grades two through five in October 1966 and April 1967. While differences were generally small, two-thirds of them favored MES Modal. Age, not total grade group norms, was used.

---

* In a communication dated September 6 1968.

Table 30

MEDIAN READING AGES FOR OLD AND NEW MES OCTOBER 1964, 1965, AND 1966 (TOTAL GRADE GROUP NORMS)

	OLD MES		NEW MES	
Grade	Oct. 1964	Oct. 1966	Oct. 1965	Oct. 1966
2	1.8	1.8	1.6	1.8
3	2.6	2.5	2.4	2.4
4	3.0	3.3	3.2	3.2
5	4.0	3.8	4.1	3.7
6	4.9	5.1	4.6	4.6

[Source: Table 13, page 59, of Fox (1967)]

Table 31

MEDIAN READING AGES FOR NEW MES MAY 1965 AND MAY 1967[a] (TOTAL GRADE GROUP NORMS)

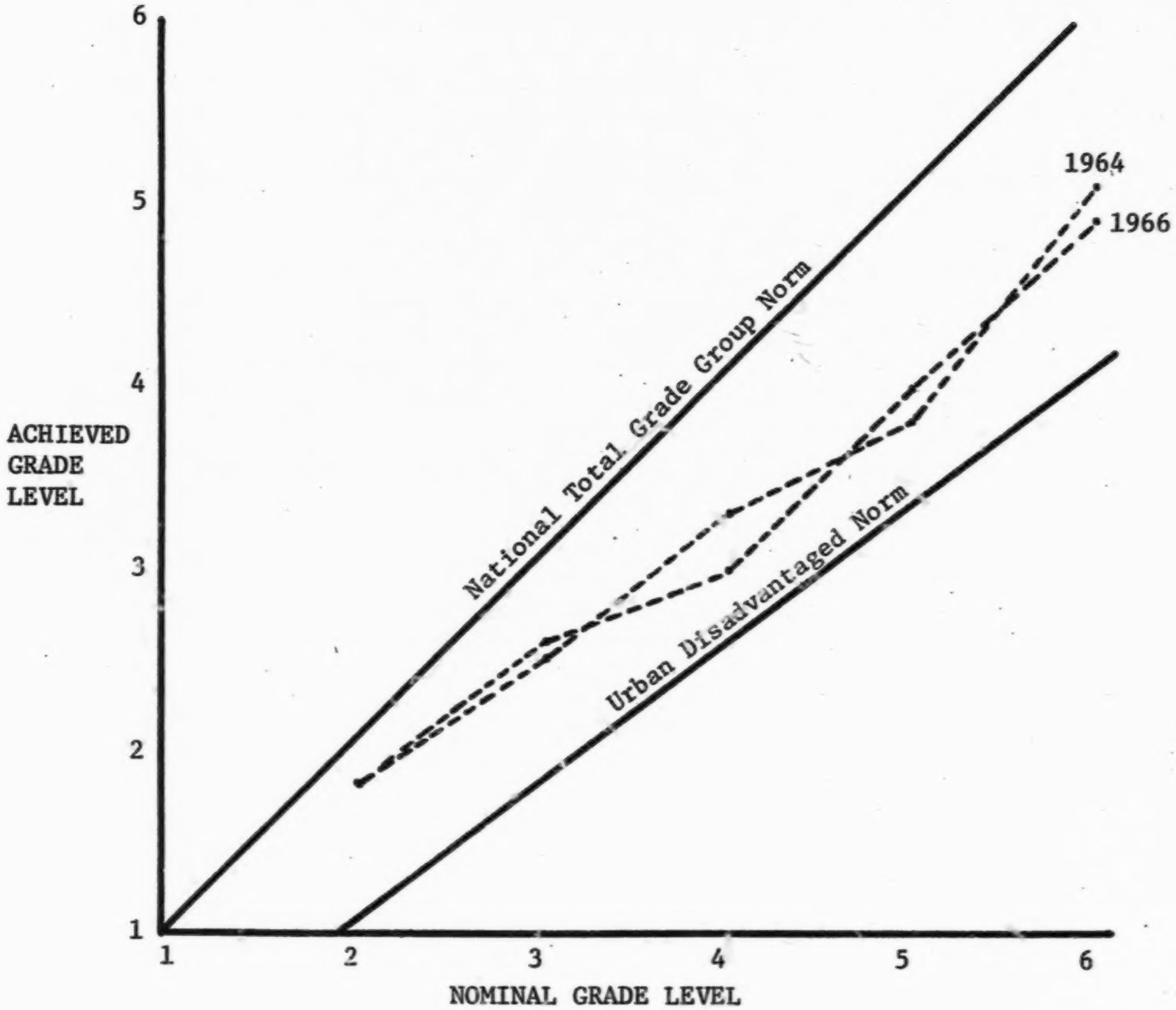
	OLD MES		NEW MES	
Grade	After 1 Year May 1965	After 3 Years May 1967[a]	After 1 Year May 1966	After 2 Years May 1967[a]
2	2.4	2.7	2.4	2.7
3	3.7	3.6	3.4	3.5
4	4.2	4.0	3.7	4.1
5	5.2	4.6	4.5	4.7
6	6.1	5.6	5.3	5.6

[a] These data for May 1967 were estimated by adding one month to the April 1967 data.

[Source: Table 13, page 59, of Fox (1967)]

Diagram 8

OLD MES READING PROFILES
OCTOBER 1964 AND OCTOBER 1966



Note: These profiles do not indicate the scores of a group of pupils in successive years, but show a comparison between the status of several grades in one year and those grades (but different pupils) in another year.

Diagram 9

NEW MES READING PROFILES
OCTOBER 1965 AND OCTOBER 1966

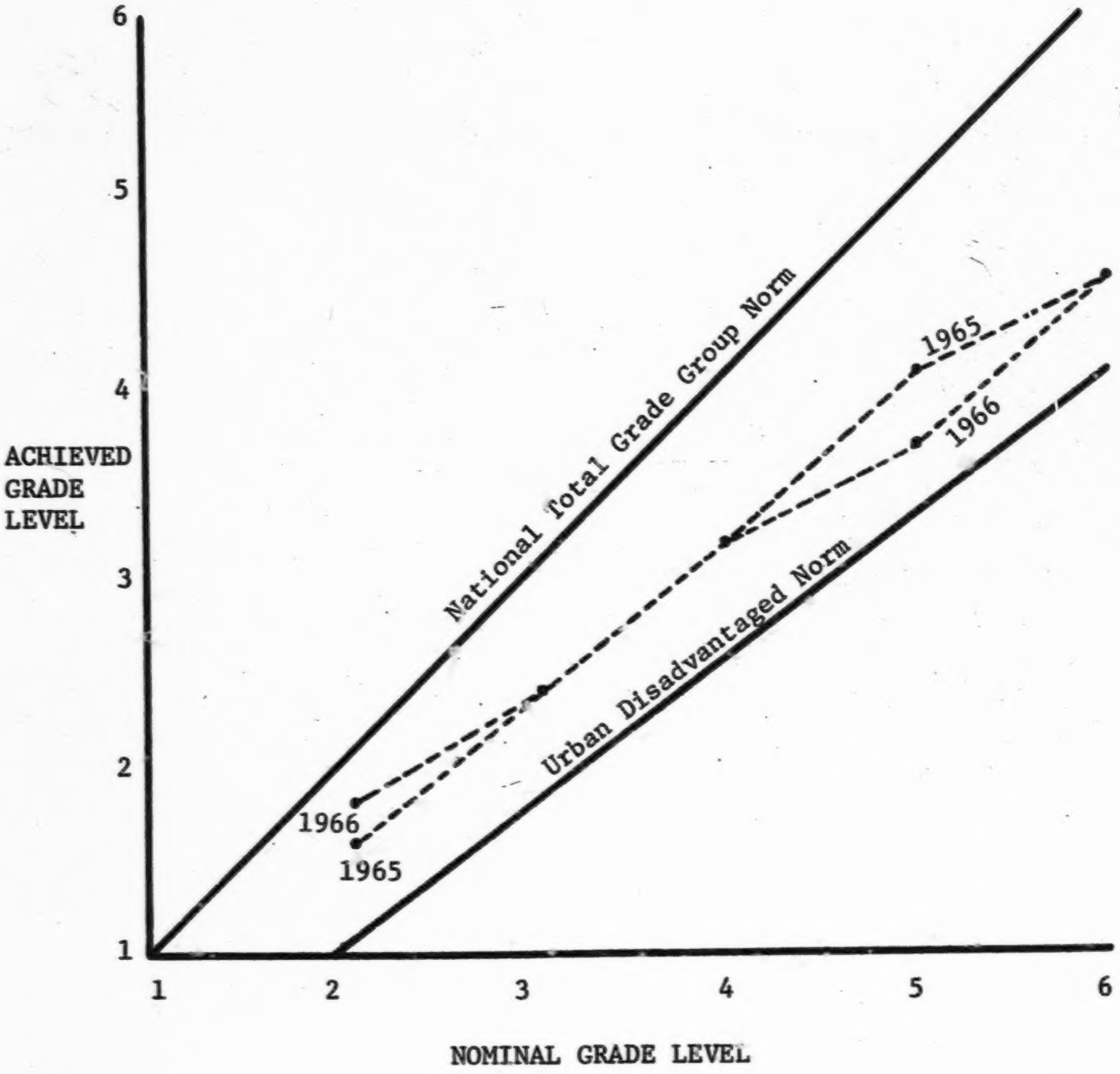


Diagram 10

OLD MES READING PROFILES
MAY 1965 AND MAY 1967

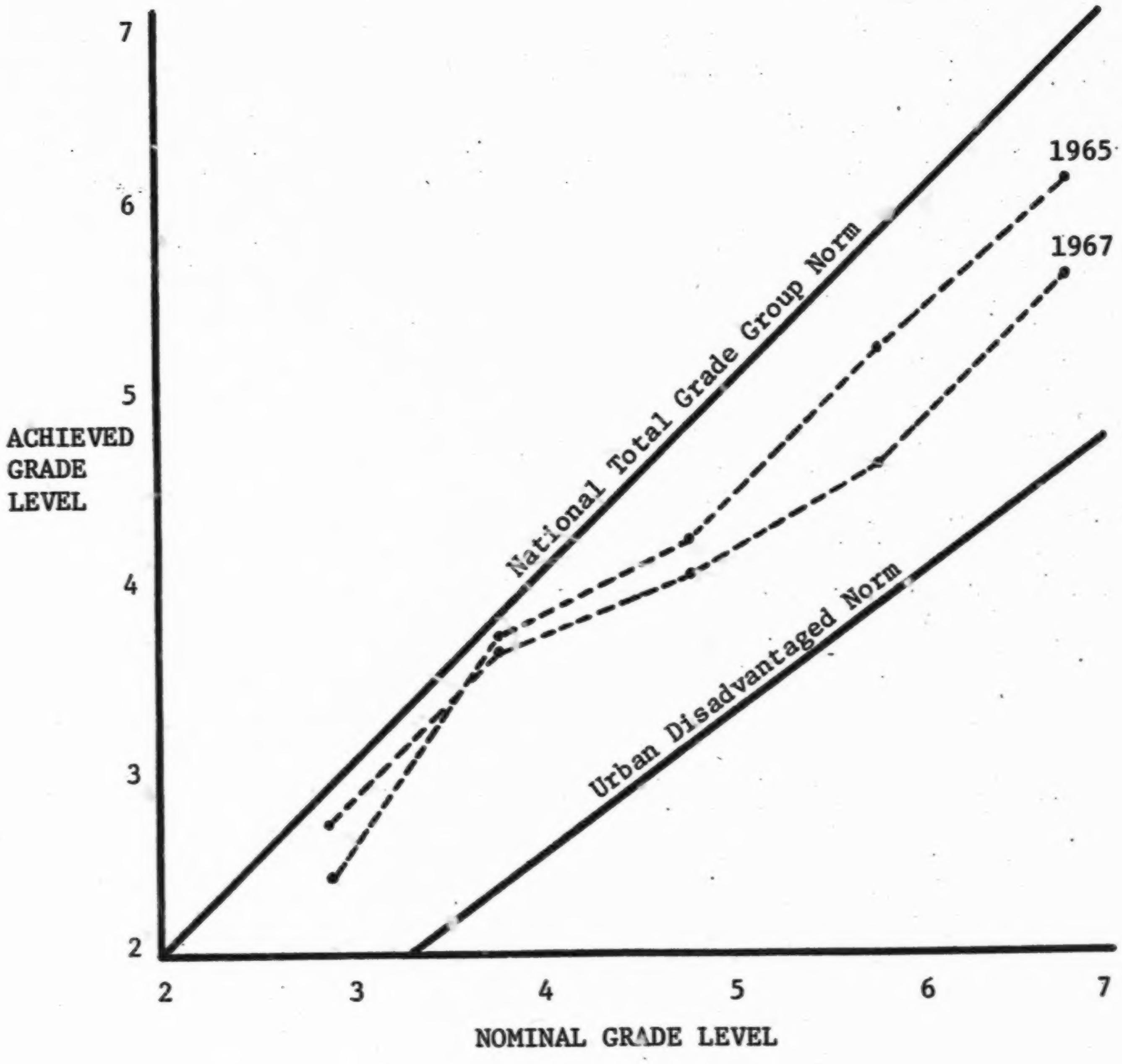
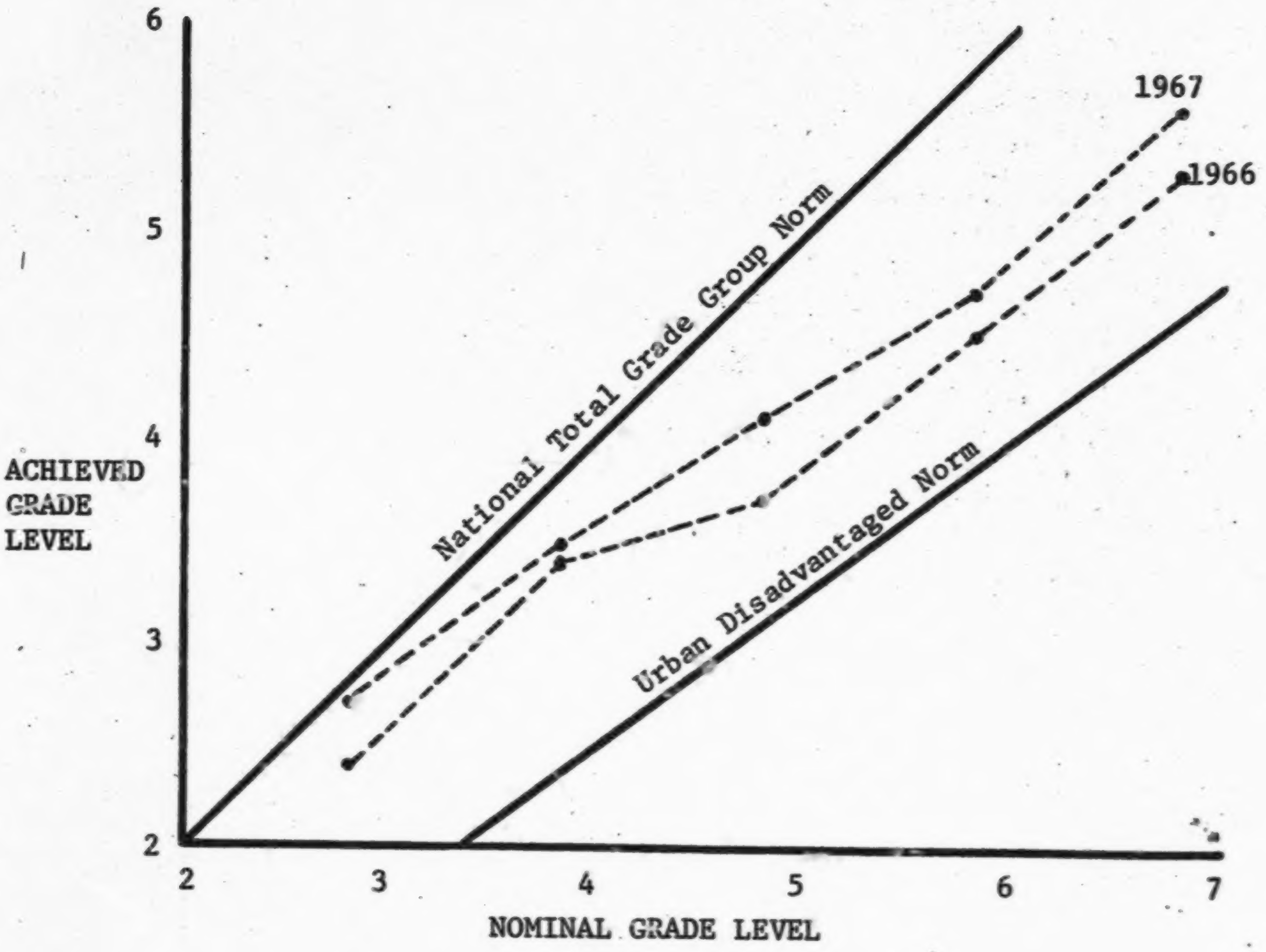


Diagram 11

NEW MES READING PROFILES
MAY 1965 AND MAY 1967



From Forlano and McClelland's 1966 data it is possible to construct similar profiles for the Old and New MES and compare them with control schools' profiles for the same dates (see Tables 32 and 33, Diagrams 12 through 15. The trend to be observed in these profiles favors MES.

Table 32

MEDIAN READING GRADE SCORES FOR PUPILS
IN SELECTED OLD MES AND CONTROL SCHOOLS
OCTOBER 1965 AND MAY 1966

Grade		N	Oct. 1965	May 1966
2	Old MES	409	1.9	2.7
	Control	645	1.8	2.5
3	Old MES	355	2.7	3.6
	Control	651	2.5	3.4
4	Old MES	349	3.5	4.1
	Control	602	3.3	4.1
5	Old MES	484	4.2	5.0
	Control	841	4.1	4.7
6	Old MES	282	5.2	6.2
	Control	314	5.1	5.8

[Source: Table 31, page 44 , Forlano and McClelland (1966)]

Table 33

MEDIAN READING GRADE SCORES FOR PUPILS
IN SELECTED NEW MES AND CONTROL SCHOOLS
OCTOBER 1965 AND MAY 1966

Grade		N	Oct. 1965	May 1966
2	New MES	249	1.7	2.4
	Control	391	1.5	2.1
3	New MES	257	2.3	3.4
	Control	393	2.2	3.1
4	New MES	267	3.1	3.7
	Control	337	3.0	3.6
5	New MES	140	3.7	4.3
	Control	194	3.8	4.3

[Source: Table 31, page 45, Forlano and McClelland (1966)]

Diagram 12

OLD MES' AND CONTROL SCHOOLS' PROFILES OCTOBER 1965:
READING COMPREHENSION

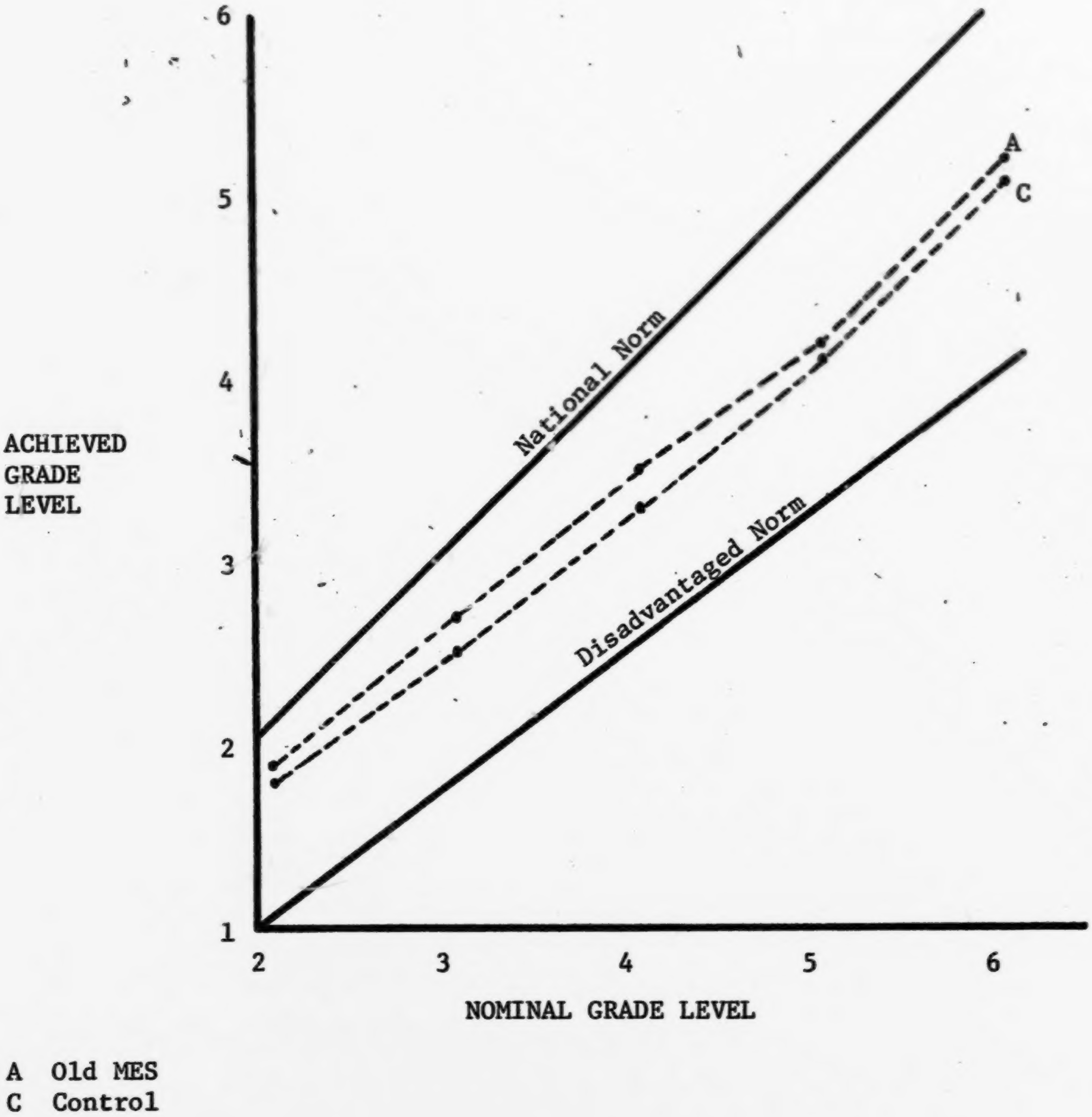
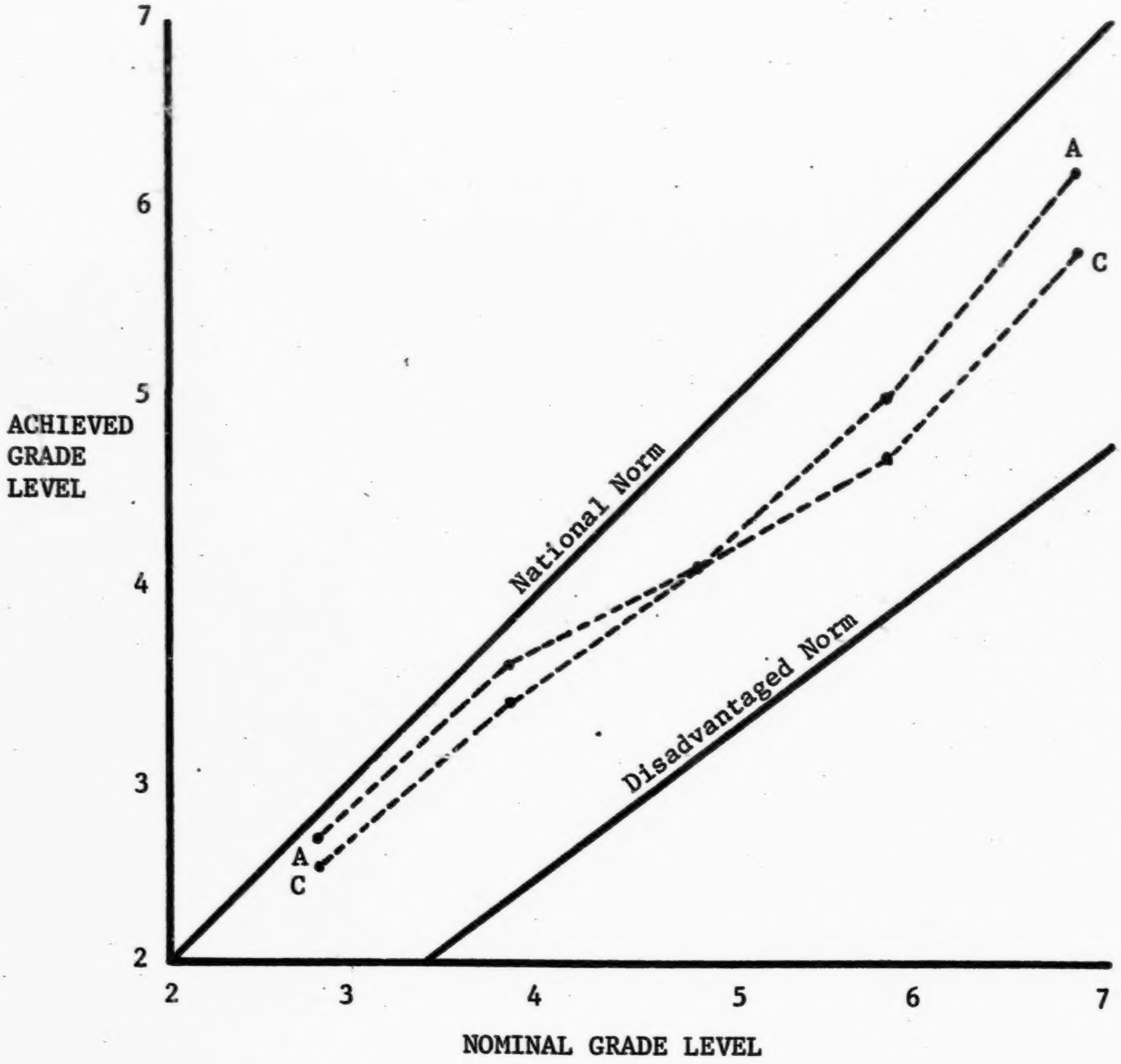


Diagram 13

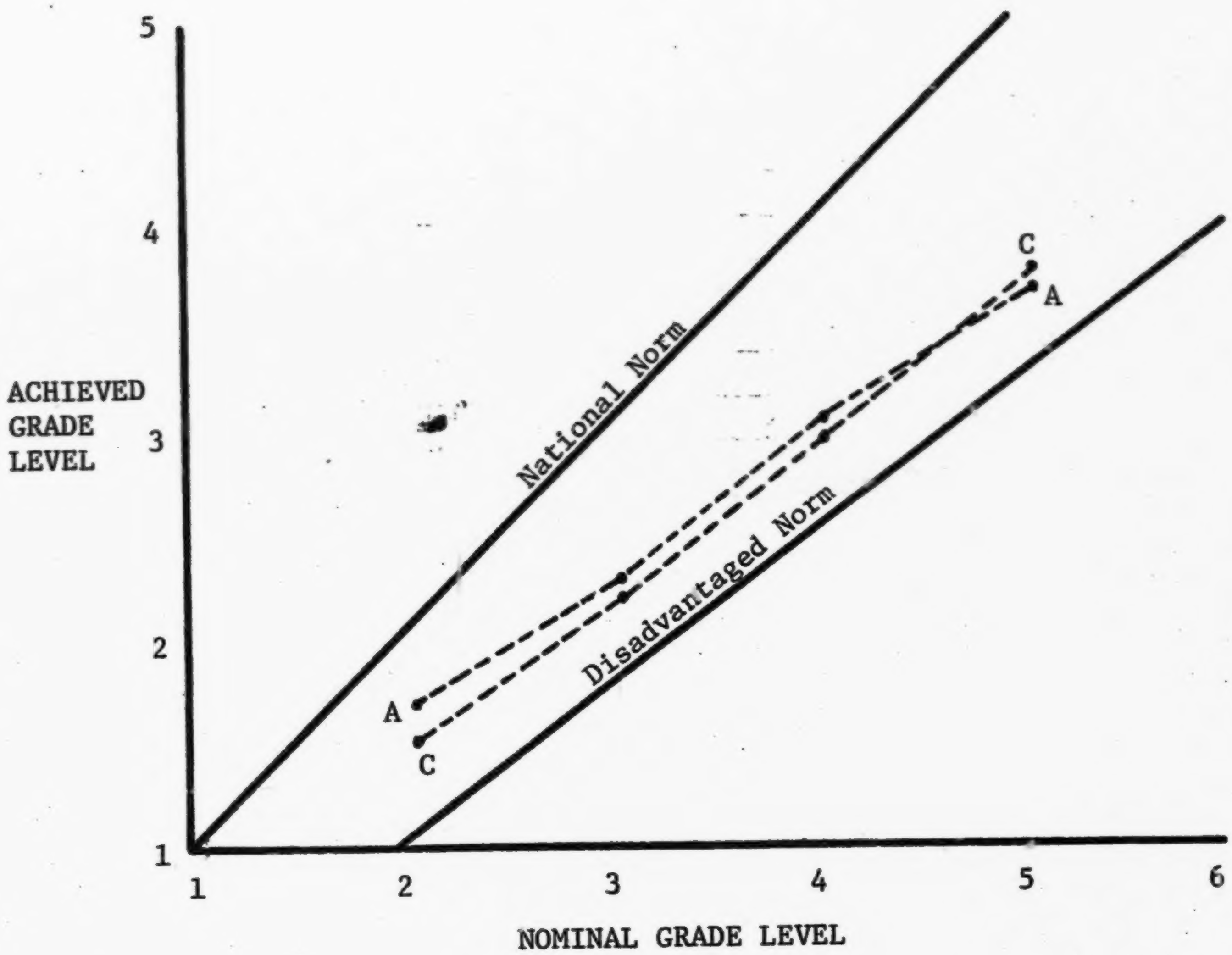
OLD MES' AND CONTROL SCHOOLS' PROFILES MAY 1966: READING COMPREHENSION



A Old MES
C Control

Diagram 14

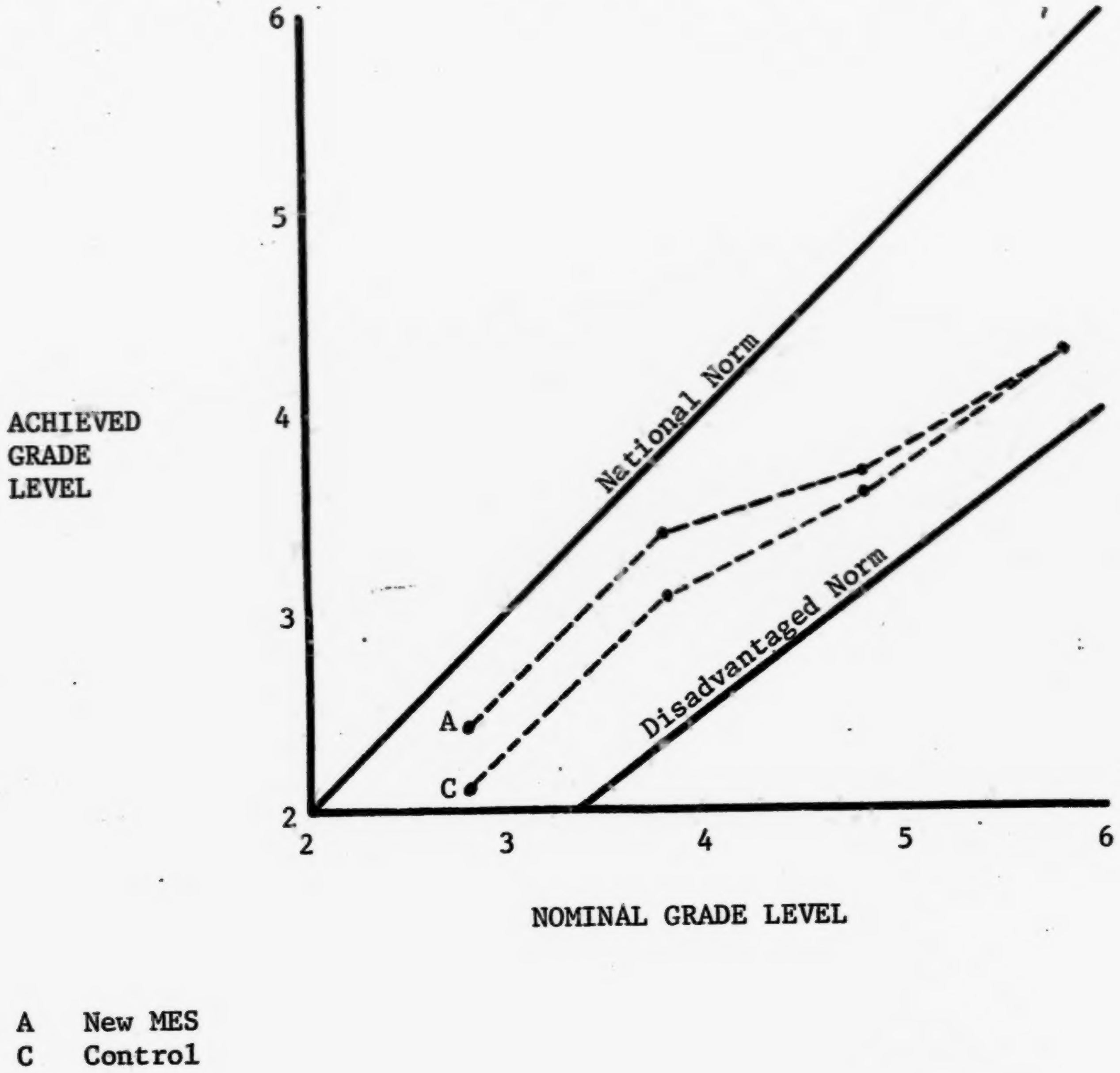
NEW MES' AND CONTROL SCHOOLS' PROFILES OCTOBER 1965: READING COMPREHENSION



A New MES
C Control

Diagram 15

NEW MES' AND CONTROL SCHOOLS' PROFILES MAY 1966:
READING COMPREHENSION



Forlano and Abramson (1968) also studied the relative reading achievement of pupils with 3 years, 2 years, and no experience of MES. The latter group was drawn from control schools. Tables 34 and 35, and Diagrams 16 and 17 summarize the data as profiles. Both the Tables and the Diagrams reveal a trend favorable to MES. The gains over the 16 school months have also been plotted in Diagrams 18 through 21 for both Old and New MES against the controls, and greater gains, in many cases towards the national norm, are shown for most groups.

Table 34

COMPARISON OF GRADE NORMS AND MEDIAN GRADE SCORES ON THE METROPOLITAN READING COMPREHENSION INITIAL AND FINAL TESTS FOR PUPILS WITH FULL AND PARTIAL MES EXPERIENCE WITH PUPILS IN CONTROL SCHOOLS BY GRADE - OLD ME SCHOOLS*

Grade as of 4/67	Education	N	10/65 Median	10/65 Norm	Md-N Diff.	4/67 Median	4/67 Norm	Md-N Diff.	Net Change
Third	3 Years of MES	564	1.8	2.1	-.3	3.7	3.7	.0	+.3
	2 Years of MES	108	1.6	2.1	-.5	3.5	3.7	-.2	+.3
	No MES	569	1.8	2.1	-.3	3.4	3.7	-.3	.0
Fourth	3 Years of MES	538	2.7	3.1	-.4	4.1	4.7	-.6	-.2
	2 Years of MES	210	2.3	3.1	-.8	3.7	4.7	-1.0	-.2
	No MES	602	2.4	3.1	-.7	3.7	4.7	-1.0	-.3
Fifth	3 Years of MES	544	3.5	4.1	-.6	5.0	5.7	-.7	-.1
	2 Years of MES	203	3.3	4.1	-.8	4.8	5.7	-.9	-.1
	No MES	548	3.3	4.1	-.8	4.5	5.7	-1.2	-.4
Sixth	3 Years of MES	187	4.6	5.1	-.5	6.0	6.7	-.7	-.2
	No MES	271	4.6	5.1	-.5	5.9	6.7	-.8	-.3

* In grades three, four, and five, pupils were drawn from 10 ME schools and six control schools; in grade six, participating pupils were from three ME schools and three control schools.

[Source: Table 3, page 8, Forlano and Abramson (1968)]

Table 35

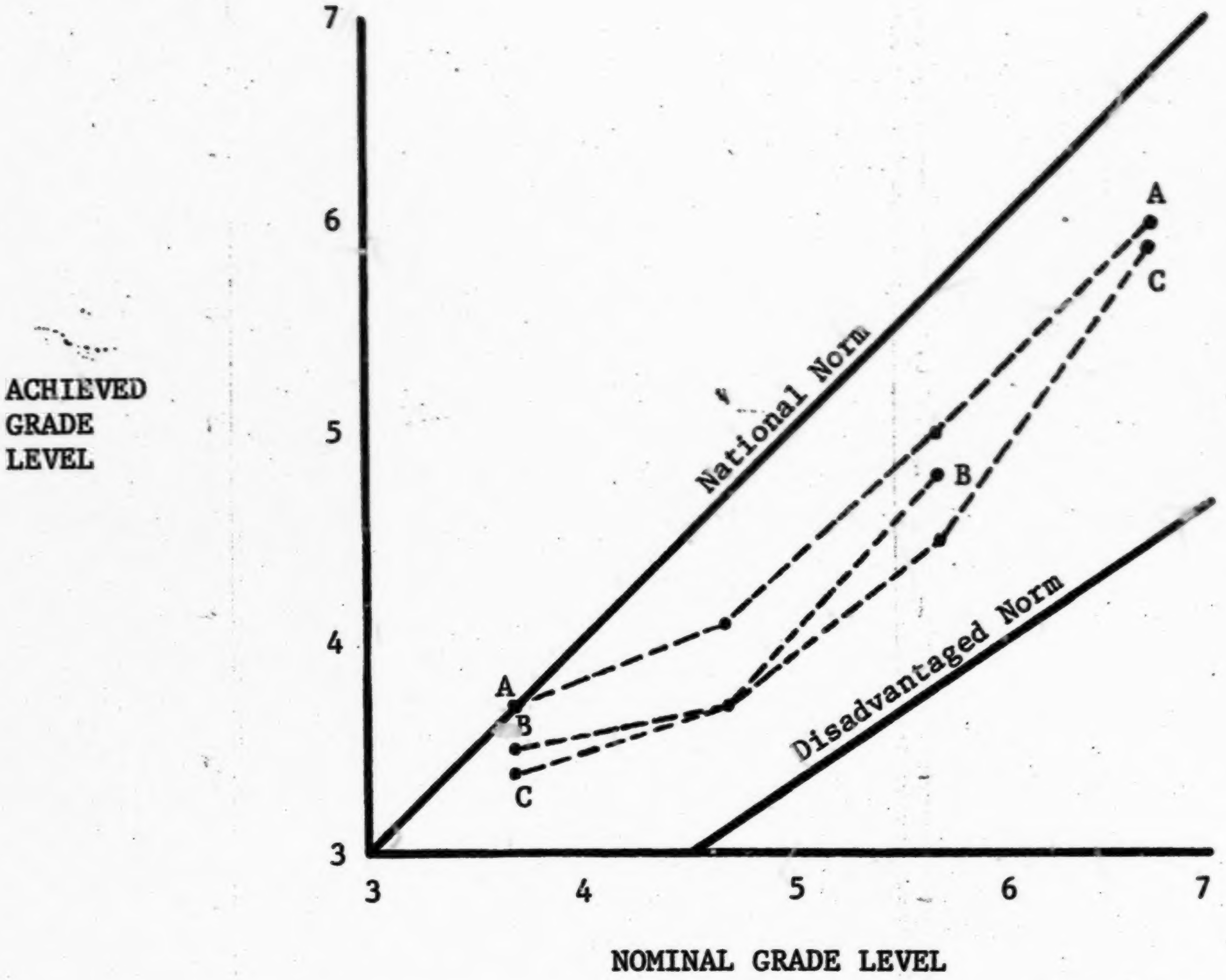
COMPARISON OF GRADE NORMS AND MEDIAN GRADE SCORES ON THE METROPOLITAN READING COMPREHENSION INITIAL AND FINAL TESTS FOR PUPILS WITH TWO YEARS OF MES EXPERIENCE WITH PUPILS IN CONTROL SCHOOLS BY GRADE - NEW ME SCHOOLS

Grade as of 4/67	Education	N	10/65 Median	Norm	Md-N Diff.	4/67 Median	Norm	Md-N Diff.	Net Change
Third	2 Years of MES	458	1.6	2.1	-.5	3.6	3.7	-.1	+.4
	No MES	202	1.6	2.1	-.5	3.3	3.7	-.4	+.1
Fourth	2 Years of MES	547	2.5	3.1	-.6	4.1	4.7	-.6	0
	No MES	216	2.3	3.1	-.8	3.7	4.7	-1.0	-.2
Fifth	2 Years of MES	492	3.3	4.1	-.8	4.8	5.7	-.9	-.1
	No MES	204	3.2	4.1	-.9	4.6	5.7	-1.1	-.2
Sixth	2 Years of MES	220	4.2	5.1	-.9	5.7	6.7	-1.0	-.1
	No MES	73	4.1	5.1	-1.0	5.3	6.7	-1.4	-.4

[Source: Table 6, page 13, Forlano and Abramson (1968)]

Diagram 16

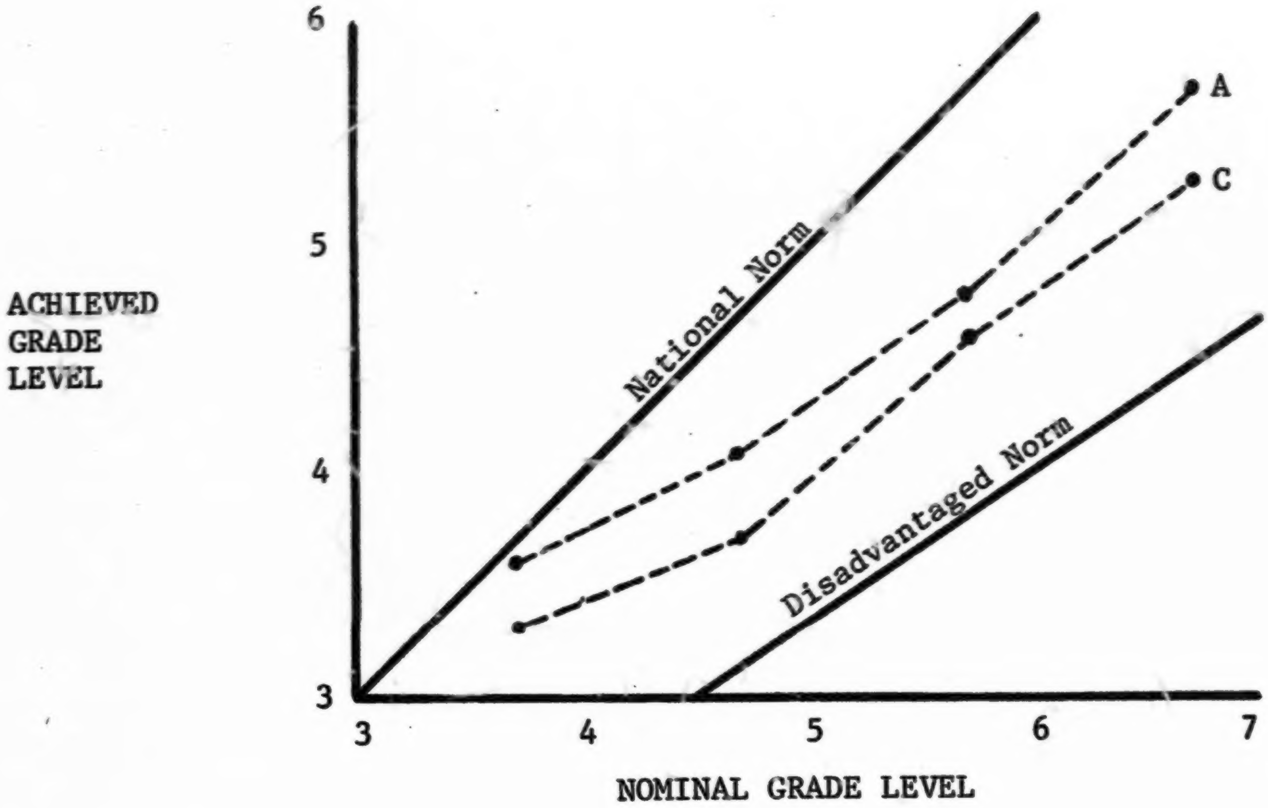
PROFILES OF GROUPS OF PUPILS WITH 3 YEARS OLD MES,
2 YEARS OLD MES, AND NO MES EXPERIENCE, APRIL 1967



A 3 Years Old MES
B 2 Years Old MES
C Control - No MES

Diagram 17

PROFILES OF GROUPS OF PUPILS WITH 2 YEARS' NEW MES AND NO MES EXPERIENCE, APRIL 1967



A 3 Years New MES
C Control - No MES

Diagram 18

MEDIAN READING GAINS FOR PUPILS STARTING IN GRADES TWO AND FOUR
IN OLD MES AND CONTROL SCHOOLS,
OCTOBER 1965 THROUGH APRIL 1967

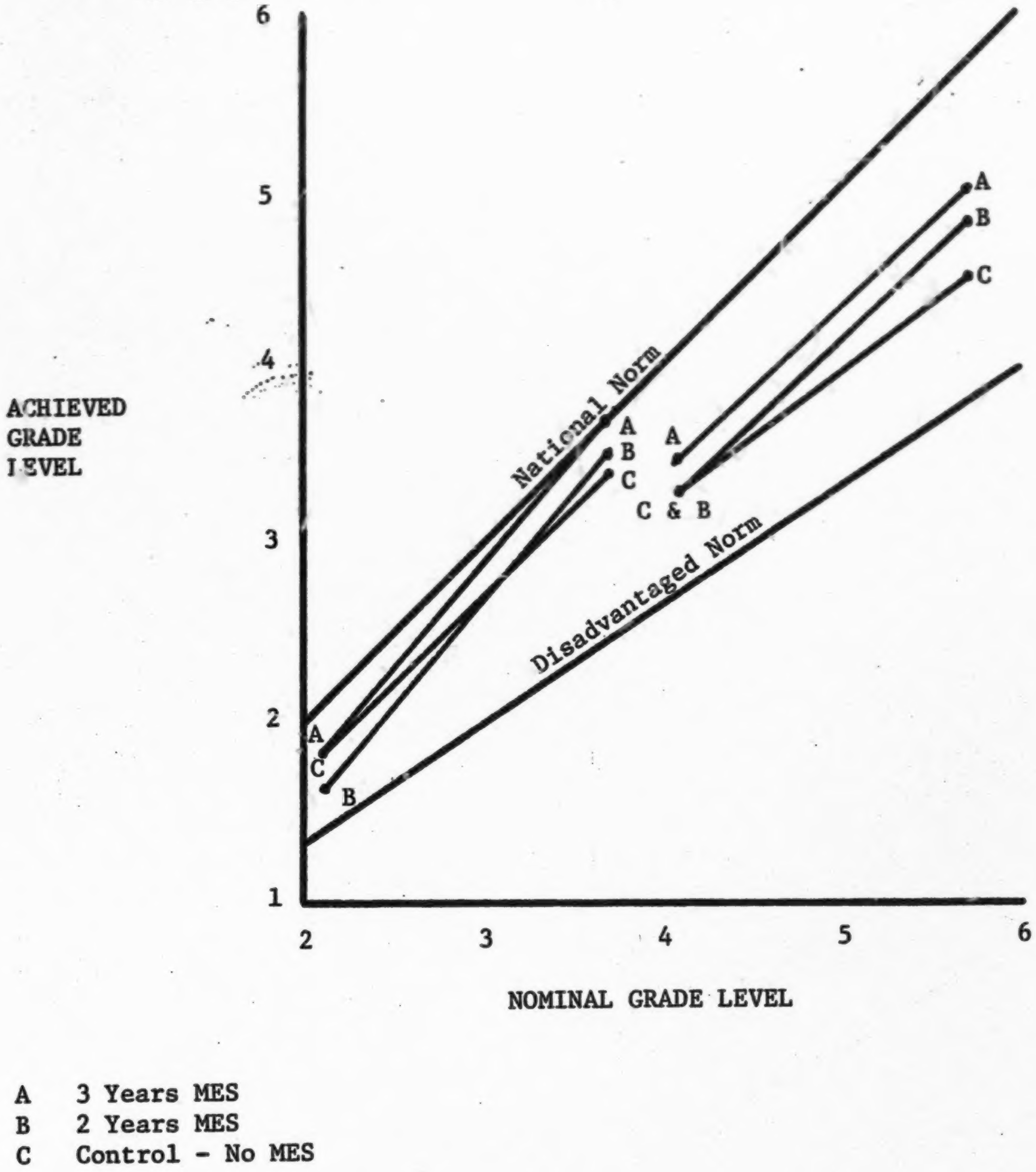
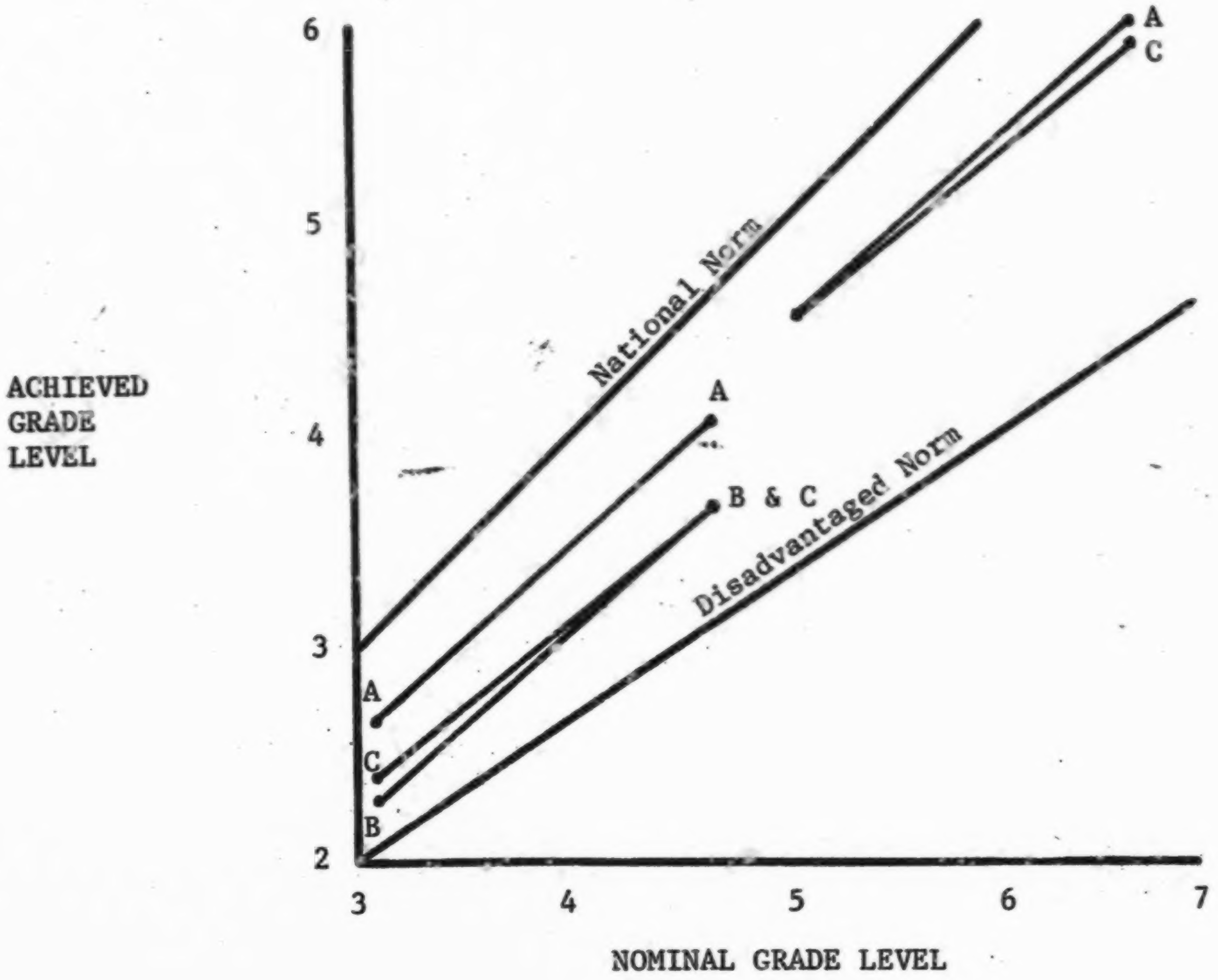


Diagram 19

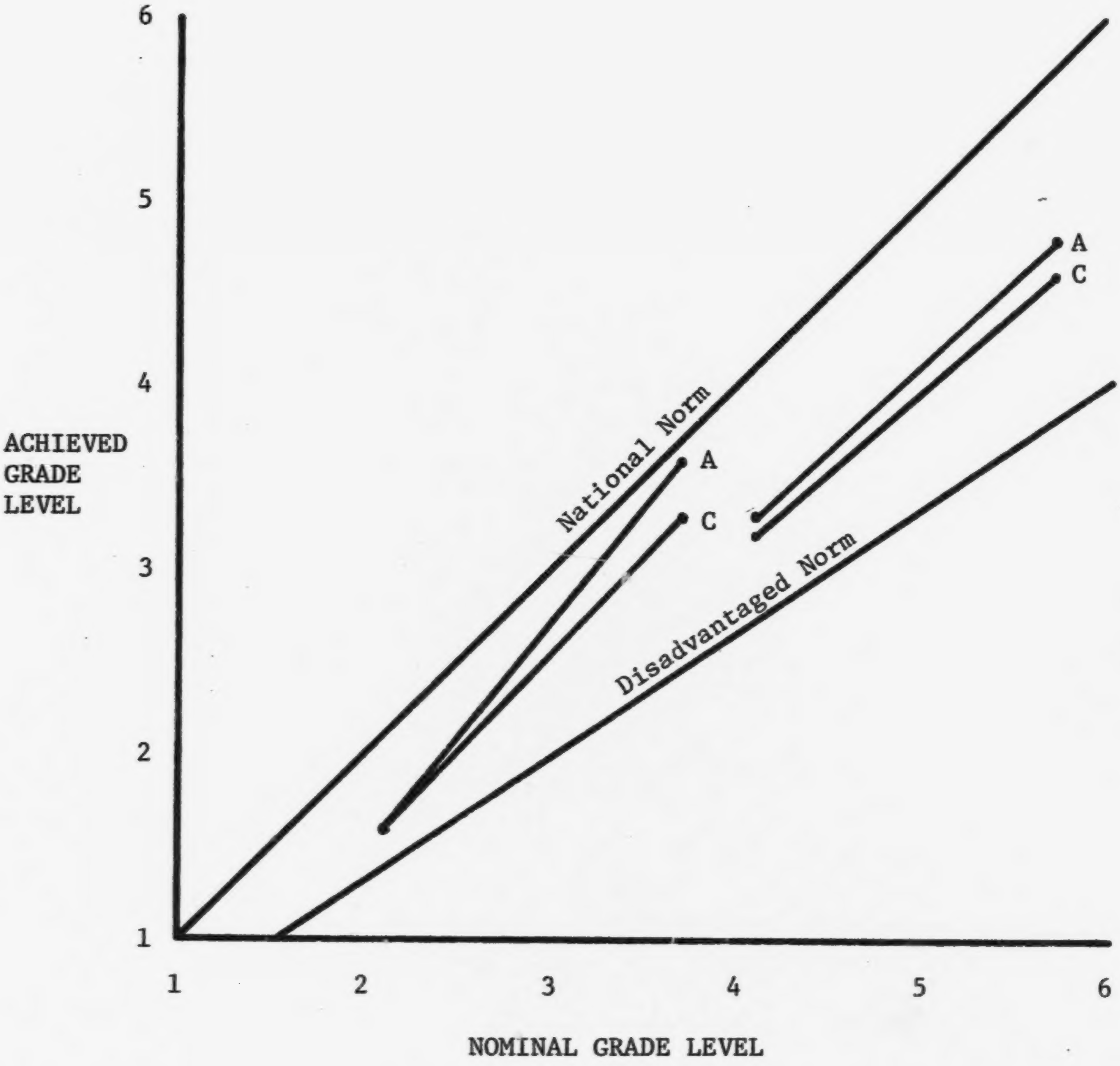
MEDIAN READING GAINS FOR PUPILS STARTING IN GRADES THREE AND FIVE IN OLD MES AND CONTROL SCHOOLS, OCTOBER 1965 THROUGH APRIL 1967



A	3 Years MES
B	2 Years MES
C	Control - No MES

Diagram 20

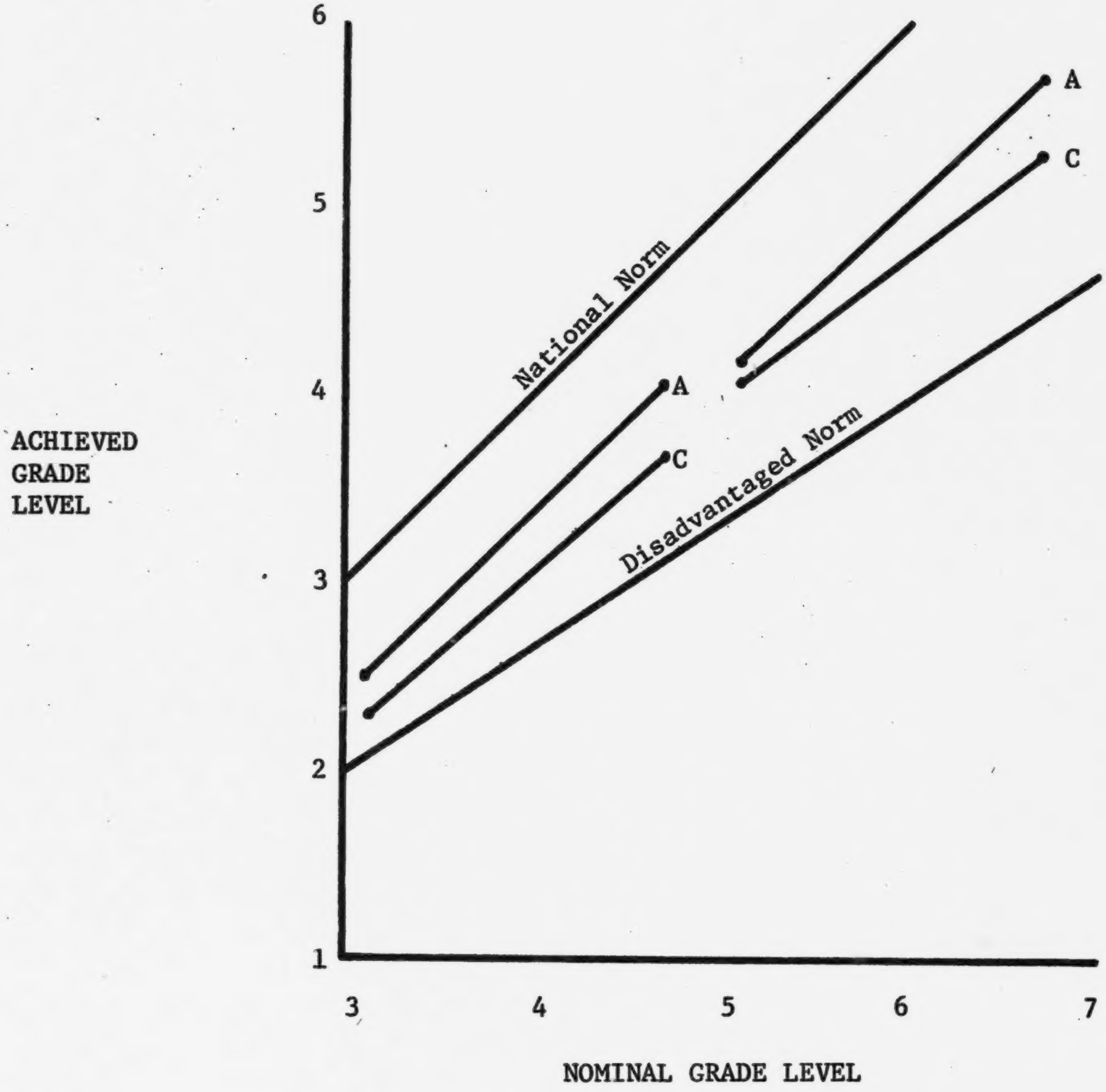
MEDIAN GAINS FOR PUPILS STARTING IN GRADES TWO AND FOUR IN NEW MES AND CONTROL SCHOOLS, OCTOBER 1965 THROUGH APRIL 1967



A 2 Years MES
C Control - No MES

Diagram 21

MEDIAN GAINS FOR PUPILS STARTING IN GRADES THREE AND FIVE IN NEW MES AND CONTROL SCHOOLS, OCTOBER 1965 THROUGH APRIL 1967



A 2 Years MES
C Control - No MES

In an even more rigorous comparison, Forlano and Abramson attempted to control any possible differences caused by the fact that some ME schools were designated Special Service Schools, others not. A study was made of the results of four old ME and two new ME schools which were Special Service Schools and those of control Special Service Schools. Similar trends were observed as in the comparisons already mentioned.

A variety of other comparisons were made by both Fox and Forlano, including an assessment of arithmetic achievement, but the summary above includes the salient features of the evaluation so far as measured benefits of cognitive achievement are concerned.

B. Other Evaluation Indices

The first study discussed above used observers and questionnaires as well as achievement tests, and the following conclusions were drawn:

> In the areas of overall school climate and staff attitude as sensed by observers, and as reported by administrative staff and teaching faculty, it is clear that in most of the schools in which the MES program has been established, there was an atmosphere and climate characterized by enthusiasm, interest, and hope and a belief among all levels of staff that they were in a setting in which they could function. Moreover, parents and community, too, have responded with interest and enthusiasm to the MES program in their neighborhood schools. The creation of such positive feelings and climates in a school system which in recent years has evidenced considerable internal stress and school-community conflict is an important accomplishment. It makes clear that school climate can be improved and that community relationships can be developed within a brief period of time.

C. Modifications and Suggestions

The following suggestions were made by the 1966-67 faculty and administration during a survey conducted by the Center for Urban Education, New York City (Fox, 1967).

1) Try to overcome the effects of pupil and family mobility by close cooperation with the Department of Housing, Department of Welfare, and other social agencies so that education will be continuous.

2) Adapt lesson plans to small class size and heterogeneous grouping.

3) Adapt the self-contained classroom concept to cut down the movement of children and the variety of teachers.

4) Employ more specialists, particularly in guidance and more teachers and administrators with experience in working with the disadvantaged.

5) Keep maximum classroom size as small as possible (preferably below 20, and less than this for preschoolers).

6) Develop a special program for preparation of teachers to function in an ME school.

7) Utilize more publicity in order to obtain whatever personnel and equipment are needed, even to building schools to order - especially larger classrooms.

8) Experiment further with the non-graded block method of instruction.

9) Radically revise direct aspects of the instructional processes, like curriculum, to produce more cognitive as well as effective achievements.

10) Provide each teacher with a daily free preparation period and relieve him of non-teaching responsibilities.

11) Reduce the number of additional personnel (OTP's).

Budget (per school of approximately one thousand students)

Full Year Program

A. Personnel

Administration

1	Principal	Full-time
1	Administrative Assistant	Full-time
3	Assistant Principals	Full-time
3	Guidance Counselors	Full-time
1	Psychologist	Full-time
1	Social Worker	Full-time
1	Attendance Teacher	Full-time
1	Psychiatrist	One day a week

Instruction

1	Speech Improvement Teacher	Full-time
300	Classroom Teachers	Full-time (two per class in prekindergarten and kindergarten; one per class in grades one to six)
7	Special Teachers (in one or more of the following areas)	

Library
Reading Instruction
Corrective Reading
Art
Music
Audio-visual
Science
Language Resource
Health Education

Other Personnel

1	Community Relations Coordinator	Full-time
3-5	Clerical	Full-time
	Teacher Aides	6,500 hours +
	Custodial	Full-time
	Bus Drivers	Part-time

B. Supplies
  1. Audio-visual

    Closed Circuit Television
    16 mm Projectors
    Film Strip Projectors
    Film Strip Viewers
    Overhead Projectors
    Slide Projectors
    Tape Recorders
    Phonographs
    Earphone Sets and Connection Boxes
    Radios
    Television Receivers
    Cameras

  2. Textbooks and Kits

C. Miscellaneous

Testing
Travel
Utilities
Custodial Supplies
Field Trips (Buses)
Field Trips (Other)
Rent
Repairs to Equipment
Inservice training
Welfare Services
Home Visits

In 1965-66, the per pupil cost in the nine control schools was $460.33, "approximately one-half of what it was for the schools having MES programs."

Quoted Sources

Forlano, G. and Abramson, J. Measuring pupil growth in reading in the More Effective Schools. New York: Board of Education of the City of New York, April 1968.

Forlano, G. and McClelland, S.D. Evaluation of the More Effective Schools Program: Summary report. New York City: Board of Education of the City of New York, September 1966.

Fox, D. J. Expansion of the More Effective Schools Program. New York City: The Center for Urban Education, September 1967.

Gordon, E. et al. Report on the Board of Education, New York City, of the Committee on Experimental Programs to Improve Educational Achievement in the Special Service Schools. Pomona, New York: Teaching and Learning Research Corp., 1968.

Other Sources Not Quoted

Abramson, J., Gavales, N. and Forlano, G. First grade growth in vocabulary in old and new MES schools. New York: Board of Education of the City of New York, 1967.

Fox, D. J. A reply to the critics. The Urban Review, 1968, 2 (6).

Gottesfeld, H. More effective evaluation for More Effective Schools. The Urban Review, 1968, 2 (6).

Jones, H. The shared classroom. New York: Board of Education of the City of New York, 1967.

Marcus, M. Some guides for the kindergarten teacher. New York: Board of Education More Effective Schools Program, 1966.

New York City Public Schools. Report of the Joint Planning Committee for More Effective Schools. New York: New York City Public Schools, 1964.

Schwager, S. An analysis of the evaluation of the MES program conducted by the Center for Urban Education. The Urban Review, 1968, 2 (6).

Steinhoff, C. R. and Owens, R. G. Organizational climate in the More Effective Schools. New York: Division of Teacher Education of the City University of New York, 1967.

For More Information

Dr. Samuel D. McClelland, Acting Director
Bureau of Educational Research
Board of Education of the City of New York
110 Livingston Street
Brooklyn, New York 11201

Dr. George Forlano, Assistant Administrative Director
Bureau of Educational Research
Board of Education of the City of New York
110 Livingston Street
Brooklyn, New York 11201

Mrs. Hortense Jones
More Effective Schools Program
Board of Education of the City of New York
141 Livingston St.
Brooklyn, New York 11201

PROJECT CONCERN (HARTFORD, CONNECTICUT)

Introduction

Project Concern is an experimental education program involving the bussing of inner-city children to classes in suburban elementary schools. Among the primary purposes of Project Concern are to assess the academic growth that takes place when the typical disadvantaged child of the city is placed in suburban schools where learning expectations are high, and to demonstrate the operational feasibility of urban-suburban collaboration in such a program. The project was designed to evaluate experimentally four different interventions: a) placement in a suburban school, b) placement in a suburban school with remedial-supportive assistance, c) placement in an inner-city school, and d) placement in an inner-city school with comprehensive and intensive compensatory services.

During the 1966-67 school year, Project Concern was bussing 255 inner city pupils to grades K-5 in five suburbs. Of this group, 224 were Negro, 24 Puerto Rican, 7 white. The children were distributed to 123 classes in 33 schools. Of the 255 bussed pupils, 213 received supportive services from a team consisting of a professional teacher (most of whom were Negro) and a mother from the target area who served as a nonprofessional aide. A team was provided for approximately every 25 pupils. The remaining 42 pupils were placed in suburban schools without supportive services from an external team. For the experimental sample, intact classes were selected randomly from the target area schools which have at least 85% non-white enrollment. This procedure made it possible to free a teacher for each class who could then be assigned to the supportive team. The pupils were assigned on a "vacant-seat basis" to the suburban schools, with either two or three pupils assigned to each classroom.

Project Concern was initiated in 1966 as a 2-year exploratory study. The full scale initiation of the project followed extensive discussions with the school boards, school administrators, and the citizens of the surrounding communities. Five of the suburban communities agreed to collaborate with Hartford on a 2-year basis, while one suburb declined. During the summer of 1966, the logistic feasibility of the urban-suburban educational program was determined in conjunction with a summer school experiment sponsored by the Office of Economic Opportunity (West Hartford Public Schools, 1967). During the 1967-68 school year, the experimental program involved approximately 260 disadvantaged children.

While the project was basically an experimental bussing program, it differed from similar programs on at least two counts. First, it was set up as a research program with experimental and control groups rather carefully selected. Secondly, the program provided supportive services which accompany the pupils to the suburban schools.

The criterion variables established to evaluate the treatment effects can be grouped into four areas: mental ability, academic achievement, personal-social development, and creativity. In the area of mental ability, the Wechsler Intelligence Scale for Children and the Primary Mental Abilities tests were used. In academic achievement, the Metropolitan Readiness Test was employed for kindergarten and grade one, while the Iowa Test of Basic Skills and the Sequential Test of Educational Progress (Reading and Mathematics) were administered to pupils in grades three to five. At the time of the present report, the results have not been analyzed completely nor were the data available to the present authors. However, the analysis presented in the August 1968 evaluation report (Mahan, 1968) suggested that children placed in suburban classrooms at grades K-3 have a significantly greater tendency to show growth in mental ability scores than those remaining in inner city classrooms. The reverse appears to be the case for children in grade four; while no significant differences in mental ability changes were noted between the experimentals and controls in grade five. The findings were similar in the case of school achievement measures, where the differences were consistently in favor of the experimental groups for those pupils in grades K-3. However, in grades four and five the control groups outperformed the experimentals. The effects of supportive assistance on the bussed pupils were mixed. It was also concluded that the placement of two or three children in a suburban classroom had no measurable negative effect on the academic achievement of the suburban children.

Personnel

Central Staff

A. Project Director. (Master's Degree, experienced and certified in Public School Administration.)

The project director had overall responsibility for the project.

B. Assistant Director (Master's Degree, experienced and certified in Public School Administration.)

In addition to assisting in the management of the project, the assistant director served as a consultant for training and social work. He directed the monthly workshops for inservice training of non-professional aides and evaluated their performance.

C. Coordinator of Aides. (Experienced in Public Schools, Bachelor's Degree.)

The coordinator of aides kept track of all records and reports that aides prepared and records of attendance of aides and project pupils. He made plans for workshops and assisted the assistant director in planning and conducting workshops and in other functions.

D. Community Worker. (Degree in social work; worked half time with one of the suburban communities in the project.)

This individual was the school social worker assigned to the project and was responsible for approximately 65 children placed in one of the suburban communities.

E. Executive Assistant.

This individual served as the senior clerical/administrative person on the project.

F. Secretarial Assistant.

Field Staff

A. Supportive Teachers. (Eight in 1967-68, 30 during 1968-69.)

While these teachers were paid by the Hartford school district, they were considered regular members of the suburban schools to which they were assigned. Their roles varied among the suburban communities ranging from serving as a regular classroom teacher to working with small groups as a remedial instructor.

B. Para-professional Aides. (High school graduate; nine during 1967-68, 30 in 1968-69.)

These aides were mothers residing in the target area of Hartford. They rode the bus, provided clerical assistance, and conducted home visits.

In addition to the above staff, each suburb in the project assigned a member of its administrative staff as a coordinator with the project central office in order to increase the ease of operation and provide a clearinghouse for communication.

In addition, the project was assisted by two committees. One was a broadly based Advisory Council made up of representatives from participating school boards, State Department of Education, Office of Economic Opportunity, and the Negro community. This Council advised the Director on general operational problems and served as a forum for discussion of new developments. The second, the Professional Advisory Committee, included the director and three university scholars. This group advised on professional questions relating to the research design, data collection, and data analysis areas. Final decisions on such topics were made by this group.

Methodology

As described by Mahan (1968), Project Concern was built upon the following assumptions:

1. Response patterns are most likely to change when the environmental conditions (physical, psychological, and social) are markedly different from those typically encountered.

2. As old response patterns are discarded, the evolving new patterns will develop in the direction of models presented by the peer group, provided such models do not create disabling anxiety or pose unattainable goals.

3. Teacher expectations can be consistently higher (and therefore more effective) when the classroom situation provides feedback to the teacher in terms of adequate goal attainment by a majority of the students.

As already indicated, the two major components were the bussing of children to suburban classes and the utilization of supportive teams. The intent of the supportive team was to assist in overcoming the academic disadvantages of the Hartford children and to relieve the worry that the disabilities of the Hartford children would place an extreme demand on the suburban teacher and work to the detriment of the suburban children. The services of the supportive team depended upon the specific suburban school and, while focused primarily on the experimental pupils, were available to all the children in the suburban classroom. The underlying assumption was that the suburban school with the added services provided by the supportive team, could better meet the remedial needs of the experimental pupils, maintain improved home-school contact, and also provide a bonus to the local school population in terms of added staff time and talent.

Staff inservice training was conducted "on the firing line" as an integral part of project operation. There were, however, monthly workshops for the supportive teams to provide training and to improve communications.

While not an educational component in the strict sense of the term, a critical area to project implementation was the background situation that gave rise to the idea and the negotiation process that led eventually to the contractual arrangements between Hartford and each of the five suburban towns. Presented below are excerpts from the Project Director's vivid description of this rather stormy period (Mahan, 1968, pp. 1-7).

> This is a problem which came upon Hartford, Connecticut, suddenly. A city of 162,000 people, it suddenly discovered that from 1960 through 1966 its non-white school population had doubled and was edging nervously over the 56% mark. It also discovered that those same phenomena that had been reported in so many other communities were now blatantly apparent in Hartford: achievement and mental ability scores were declining in the non-white schools; there was a clear trend toward a de facto dual school system with some schools all white and others all black; there were clear signs of increasing social problems such as higher drop-out rates, increased unemployment, rising rates of family disintegration, and dependence on welfare payment. The acceleration of these trends in the Insurance City of America was such that by 1966 half of the school districts in the City of Hartford could be officially designated as disadvantaged. Hartford, in spite of some monumental efforts toward urban renewal, had become a city with all the symptoms that are contained in the phrase "the urban crisis."
>
> In a sense, Project Concern faces squarely two sets of data: first, there is the evidence that disadvantaged youngsters in inner-city schools fail to respond effectively to their school environment; secondly, and perhaps most important, there is the accumulating evidence that efforts to correct this situation by way of smaller classes, better teachers, new curricula, special service personnel, and new physical facilities (or a combination of any or all of these) have generally been disappointing.

Hartford itself had, and continues, to embark on a number of such compensatory educational programs. The experience has been one of small gain accompanied by large disappointments. The easy answers have not seemed to work in Hartford as they appear not to have worked in other cities. The alternative to the compensatory education route is a simple one: Integration. But for Hartford the recognition of this fact came too late. Integration with the school population already 56 percent non-white ran the risk of intensifying the flight of the middle-class family from the city. While Hartford was grappling with this problem, it was also confronted with another. Many of the physical facilities of the Board of Education had become outdated, and it was clear that a program of physical renewal of plant was essential. A combination of these two problems resulted in Hartford taking a new look at itself in terms of its educational program.

A study group from Harvard suggested that:

> ...Hartford could no longer solve its educational problems by itself, but that it had to look toward metropolitan cooperation if quality education was to be provided to all Hartford youth. In fact, the report suggested that Hartford consider placing two of its non-white youngsters in each of the suburban classrooms in the greater Hartford area. The initial reaction was fast and negative.

The Connecticut State Department of Education under the leadership of Dr. William Sanders, Commissioner, and through the direct action of Dr. Alexander J. Plante, Executive Director of the Office of Program Development of the Department, agreed to sponsor a proposal for an experimental program of urban-suburban cooperation in the provision of equal educational opportunity for inner city youth. The Greater Hartford Chamber of Commerce, acting through its Education Committee and its Board of Education, through the actions of then Acting Superintendent Robert M. Kelly, made clear its willingness to cooperate with the suburban communities in the area.

The receipt of this letter (from the Connecticut State Department of Education) by the local Board of Education touched off a series of events in each of the communities involved. There was a marshaling of forces by both those in favor and opposed, petitions were circulated, meetings held, letters sent, and court suits threatened. The formal procedure of the Board of Education in all of the towns was to hold a public meeting which, first of all, provided information about the details of the proposal and, secondly, allowed each citizen an opportunity to express his feelings so that the Board might be aware of the local sentiment. The meetings were usually conducted with at least surface decorum, but in each instance the crowds could be described as "standing room only", and the intensity of the feelings ran very high. There were occasional episodes of both vehemence and viciousness. Generally, the tone of these meetings was more negative than positive. The basic objections voiced were as follows:

1) this is Hartford's problem and Hartford should solve it;
2) this is the beginning of Metropolitan Government and it will result in the loss of local autonomy and jurisdiction;
3) it would be better to spend the money on improving the conditions in the Hartford Public Schools;
4) the time involved in bussing would be physically harmful to the children;
5) the contrast between the affluence of the suburb and the poverty of the home would result in psychological trauma;
6) children would become isolated from their own neighborhoods and lose a sense of belonging;
7) their educational disabilities would be brought into clearer focus both to themselves and to the suburban children, resulting in a confirmation of their own negative self-perception and the negative perception of suburban children;
8) suburban schools are already overcrowded and there is no room to bring in outsiders;
9) the presence of disabled learners would result in the reduction of the quality of education in the suburbs;
10) the black community would prefer to have better schools of their own;
11) suburban families had to work their way up and then move out; if inner city families desire the opportunities of the suburbs, let them come by way of the same route.

The Town of West Hartford was the first to agree to this educational experiment, and they did so in resounding fashion, while at the same time they established clear cut conditions that would define the nature of the program.

Foremost among these conditions was a unique demand in the field of American public education: Project Concern must be implemented with a carefully worked out experimental design and must be conducted in a fashion that would permit evaluation of its effectiveness after two years. This condition, buttressed by a number of operational requirements, gave the program its initial structure. The basic operational requirements were as follows:

1. The City of Hartford would pay the suburban town tuition for each child accepted and this tuition would be equal to the average per pupil cost in the suburban schools elementary program.
2. Decisions about placement in programs for Hartford youngsters would be the responsibility of the suburban school administrators.
3. In the event that the suburban school system should feel the program was not working, they could withdraw on 30 days' notice to the Board of Education of the City of Hartford.
4. Transportation and administration of the program would be the responsibility of the City of Hartford.

In this fashion contractual arrangements between the City of Hartford and each suburban town were crystallized.

Evaluation

A. Measures of Achievement

A full analysis of the data, using analyses of covariance and multiple regression techniques, has yet to be reported. Neither were sufficient data available in the report to permit an independent analysis and interpretation by the reader. Accordingly, the conclusions present below are those of the project director (Mahan, 1968, pp. 31 and 33) based upon a series of tests of significance of differences of mean change scores over the one year period from the spring, 1967, to spring, 1968. The spring, 1967, period was used as the base because of the serious deficiencies in the fall, 1966, data.

Mental ability. The following conclusions were drawn on the basis of the Wechsler Intelligence Scale for Children (WISC):

1. Placement in a suburban school along with supportive assistance is associated with significantly greater growth in IQ than placement in an urban school under either condition at grades kindergarten, two, and three.

2. Placement in a suburban school without supportive assistance is associated with significantly greater growth in IQ than placement in an urban school under either condition at grades kindergarten, one and three.

3. At only one grade level (grade four) do subjects in an urban school have a growth rate in IQ that is significantly higher than the experimental groups.

4. The least effective treatment method appears to be urban placement combined with supportive assistance. The experimental group (either or both) outperform these subjects at all four grade levels in which this treatment method was employed.

5. There appears to be no clear difference in the impact of suburban placement by itself and suburban placement along with supportive functioning.

6. The experimental intervention seems most effective up through grade three in terms of measurable changes in intellectual functioning.

7. The signs of "cumulative deficit" do not appear very clearly although there are some slight decrements in the upper two grades.

8. There is no clear trend for drops in performance level to occur after the summer vacation.

9. The changes in IQ, though moderate in magnitude, reflect considerable growth toward the national norm for the experimental groups in grades K through three.

10. The subtests which contribute to the gains in IQ for the experimental groups are Information and Vocabulary in grades Kdg., one, and two with Arithmetic also included at grade three.

The results of the test of Primary Mental Abilities generally confirmed those reported for the WISC. According to Mahan (1968, p. 34):

> There is a clear and significant trend for subjects assigned to experimental treatments to do better than those in the control treatments. On the PMA there are some indications that supportive assistance enhances the performance in each setting, but an ordering of the impact of each treatment in terms of effectiveness would be as follows:
>
> | | | |
> |---|---|---|
> | 1st | Group IV | (Bussed; Supported) |
> | 2nd | Group III | (Bussed; Non-Supported) |
> | 3rd | Group II | (Non-bussed; Supported) |
> | 4th | Group I | (Non-bussed; Non-Supported) |
>
> Other conclusions supported by these data are that the major impact seems to be in the verbal area with secondary effect on the reasoning test. Also, there is no evidence that suburban placement results in improved performance in the upper two grades (4 and 5).

School achievement measures. The results here were reported as essentially the same as for the mental ability scores. According to Mahan (1968, p.36):

> In the lower grades the differences are consistently in favor of the experimental groups with some slight edge given to the bussed group without supportive assistance. The addition of supportive assistance in the urban school has no measureable impact. However, at the upper two grades the suburban intervention does not appear effective. In fact, the control groups outperform the experimentals.

Finally, to answer the question of the possible impact of Project Concern upon the suburban children's achievement, a sample of suburban youngsters in class with Project Concern children was compared with a sample of children not in class with the Concern children, based upon the composite score on the Iowa Test of Basic Skills. There was no evidence of negative effect on the academic achievement of the suburban children.

B. Other Evaluation Indices

Based on a three-item sociometric study, it was found that the Project Concern children were selected in a proportion consistent with their proportionate membership in the classroom. Anecdotal reports from the suburban teachers indicated that the social development of Project Concern children was above average.

The project appears to have been successful in the involvement of inner city children in the formal and informal after-school activities. More than 65% of the children took part in regular after school activities. While there was considerable variation among the grades (with higher participation in the upper grades), there was no grade where the level of participation fell below 40%.

There appeared to be no negative psychological or social consequences for the project children that were involved in the suburban placement. Most expressed a liking for the program and a desire to continue. In terms of attendance, the absentee rate for inner city children placed in suburban schools was somewhat higher than that of inner city children in inner city schools, nevertheless, it was still average for elementary school children in Connecticut. Dropouts were relatively few (about 10%) and their attitudes and those of their parents remained basically positive.

C. Modifications and Suggestions

The project has remained basically the same during its first 2 years. With the approach of the 1968-69 school year, 14 Hartford suburban towns have agreed to accept approximately 640 pupils, with Hartford itself placing about 180 youngsters in its previously all-white schools and non-public schools taking another 130 inner city children into their classrooms. All told approximately 950 children will be involved with Project Concern during the 1968-69 school year. During the 1967-68 school year, the project was expanded to include children in grade six; while in 1968-69, the project will encompass some children in grades seven and eight.

The director of Project Concern during its first 2 years has suggested that one person from each of the three housing areas be added to the Project Advisory Board and that a liaison committee be established with membership from the prominent Negro organizations. He also recommends the continuation of the random selection of children to participate in the program. Even though the test data suggest that the project had its greatest impact in the lower grades, it was recommended that the upper-grade children continue in the program because of their preferences for suburban placement, their high level of extra-curricular participation, and the favorable teacher perception of the growth of these children. Further study of the concept of the suburban team was recommended. It was felt that as the program becomes established in the suburban school, the need for the supportive teacher in the same 25 to 1 ratio would seem doubtful, and the ratio of children to para-professional aide might also be increased to something like 50 to 1.

Budget

1	Project Director	
1	Assistant Director	
1	Coordinator of Aides	
1	Community Worker	(half time with one of the communities)
	Supportive Teachers	One per 25 pupils
	Para-professional Aides	One per 25 pupils

During the 2 year experimental phase the project was supported by the following funds:

	1966-67	1967-68
Title IV, Civil Rights Act	122,700	79,000
Title I, Elem. & Sec. Act	165,000	165,000
Title III, Elem. & Sec. Act	90,000	122,000
City of Hartford	70,000	70,000
Ford Foundation	---	50,000

In the 1968-69 academic year federal support from Titles I and III, Elementary and Secondary Education Act, will account for approximately 33 percent of the Project budget, Public Act 611 passed by the 1967 Connecticut General Assembly for programs like Project Concern will provide 22 percent of the budget, and the City of Hartford will provide the remaining 45 percent (approximately $345,000).

The per pupil costs for 1967-68 are illustrated below. The total cost per pupil was $1,473.

Operating Costs:

Tuition	$610.00
Supportive Teacher	312.00
Supportive Aide	127.00
Social Services	72.00

Administration	39.00
Secretarial Salaries	20.00
Lunches	42.00
Transportation	251.00

One of the major items of cost is that due to bussing the project children. It was noted that transportation costs were high due to the small number of children who were widely dispersed in the pilot project. It has been estimated that with full scale implementation the costs could be brought as low as $300-350 per pupil above the tuition cost. (Hartford Public Schools, 1967, p. 13)

Quoted Sources

Hartford Public Schools. Equal educational opportunities in the cities, the report of the Hartford conference. Hartford, Connecticut: The Schools, 1967.

Mahan, T. W. Project Concern: 1966-1968, A report on the effectiveness of suburban school placement for inner-city youth. Hartford, Connecticut: The Project, 1968.

West Hartford Public Schools. An experiment in urban-suburban suburban education. West Hartford, Connecticut: The Schools, 1967.

Other Sources Not Quoted

Hartford Board of Education. This is...Project Concern. Hartford, Connecticut: The Board, 1967.

Hartford Public Schools. Educational excellence through creative action. Hartford, Connecticut: The Schools, 1967.

Hartford Public Schools, Research Evaluation Department. Project 64-2: Elementary and Secondary Education Act Title I, P.L. 89-10, 1967-1968. Hartford, Connecticut: The Schools, 1967.

Mahan, T. W. Project Concern: An interim report on an educational exploration. Hartford, Connecticut: The Project, 1967.

Mahan, T. W. A supplementary report on non-academic factors. Hartford, Connecticut: Project Concern, 1968.

Shaw, P. Project Concern....Hartford's experimental busing program. The Hartford Courant, February 12-17.

For More Information

Mr. William Paradise, Director
Project Concern, Hartford Public Schools
192 Barbour Street
Hartford, Connecticut

Mr. Robert J. Nearine
Coordinator of Evaluation
Hartford Public Schools
249 High Street
Hartford, Connecticut 06103

THE ELEMENTARY READING CENTERS OF MILWAUKEE

Introduction

Fifteen elementary schools were provided with reading centers in which remedial reading instruction and wide reading opportunities were offered. Reading center teachers worked with six to eight pupils at a time; each group received about 30 minutes' instruction a day, 5 days a week, usually for one semester.

The pupils were in fourth through eighth grades and were from poverty areas of the city, in which high population density and mobility prevailed. Although the centers were in public schools, non-public school pupils attended too. Priority was given to pupils of average or above average IQ who were a year or more retarded in reading. Both Negro and Caucasian pupils were participants; more boys than girls were included.

The Milwaukee Public Schools have operated a reading improvement program in numerous centers since 1947, including the majority of the schools described here. This project operated in the 1966-67 school year, although different schools were served in the two semesters of that year, generally speaking. Over one thousand pupils were helped in the program.

Both oral and silent reading skills were tested, on a before-and-after basis, using the Wide Range Reading Test (oral) and the California Reading Test (silent). Gains averaging about 6 months were made during the first semester (that is, 4 months of instruction) while the average gain measured in the second semester was 7 months for silent reading and 9 months for oral reading, based on an average actual attendance of about 7 months. These results compare favorably with expected gains of about 5 months in 7 for disadvantaged pupils.

Personnel

Personnel for the program differed somewhat from first semester to second semester, on account of the change in schools already mentioned.

A. Project Director. (Part-time; normally the Supervisor of Reading Improvement of the Department of Special Education, Milwaukee Public Schools; M.A. and state license in special education; 20 years' experience in remedial reading.)

Together with the Supervising Teacher, the Project Director was responsible for selecting the schools, the pupils to attend the centers, and the teaching and other personnel. He undertook the inservice orientation of the project staff, ordered supplies, and wrote the necessary summary and progress reports and budgets.

B. Supervising Teacher. (Full-time; from the Department of Special Education, Milwaukee Public Schools; M.A. and state license in remedial reading; 16 years' teaching experience.)

The Supervising Teacher assisted the Project Director and also traveled a good deal from school to school to coordinate the centers and supervise activities.

C. Reading Teachers. (Full-time; two-thirds had the state license to teach remedial reading; 50 percent had Master's Degrees; and the average length of teaching experience for the group was about 12 years A few were Negro. All were selected on their ability to be flexible in approach, their willingness to cooperate in the program, and their previous experience in working with culturally deprived children.)

> Primary responsibilities of the reading center teachers, in addition to working with project pupils on an intensive basis, included: 1) evaluation of reading and work-analysis skills, 2) testing, 3) preparation of materials and planning of activities and learning tasks for project pupils, 4) compilation of materials and development of techniques found to be especially suitable in working with this type of child, and 5) assistance in the collection of data. In addition, interaction with public school classroom teachers was maintained by the reading specialists in order to correlate the experiences of project pupils with ongoing classroom curriculum.

Methodology: General

The stated objectives of the program were:

1. To extend and expand reading center services for pupils in grades three through eight, public and non-public, who have evidenced difficulty in developing reading skills and are at least 1 year or more retarded in reading achievement with regard to their mental capacity.

2. To develop specific skills needed in the reading process

3. To develop within each child a feeling of confidence and to provide for the enjoyment of both the process and results of reading.

During the first semester the program operated in 13 of the 15 schools selected, on account of shortage of qualified personnel. At the beginning of the second semester only three of the 13 were retained, and 12 new schools were used. Generally public school children attended the centers in the morning and non-public in the afternoon, although non-public school children comprised only about 25 percent of the group served by the program.

The pupils attended the centers for varying periods, ranging from a few weeks to two semesters. As soon as they were reading at grade level in the judgment of the teacher (based chiefly on the California Reading Test), the pupils were released from the project. Others stayed only a short time in the centers before being transferred to other schools.

In the centers, a diagnostic approach was used to identify the specific needs of each pupil. Materials and equipment related to those needs were then used by the teachers, on an intensive basis since they taught the pupils in fairly homogeneous groups of six to eight for 30-35 minutes a day, 5 days a week. This contrasted with the normal classes of about 29-32 pupils.

The materials used included books of high-interest age but low-reading age, highly motivating games, and workbooks; audio-visual devices were also used. The way in which these items were used varied considerably from teacher to teacher.

Methodology: Specific Examples

A. The chief activities of each grade level in the program are listed below:

CHIEF ACTIVITIES OF EACH GRADE IN THE ELEMENTARY READING CENTERS

	First Part of Period	Second Part	Third Part
4	Sight vocabulary drill	Word recognition	Read stories
5	Word recognition	Reading stories	Comprehension training
6	Comprehension training	Reading stories	Word recognition
7	Comprehension training	Study skills	Speed reading
8	Comprehension training	Study skills	Use of references

B. The standard materials and equipment list for each center are reproduced here:

Books: Single library copies of

Coward-McCann	17 titles	C. B. Colby Books
Harr-Wagner	14 titles	Deep Sea Adventures, etc.
Random House	28 titles	Beginner Books
Steck-Vaughn	113 titles	High interest - low vocabulary
Franklin Watts	37 titles	First Books
Franklin Watts	14 titles	Let's Find Out About Books

Audio-visual equipment:

Carrels: Accousti-carrels - quantity varies from school to school
Filmstrips: 175 rolls - Eye-Gate House
Filmstrip projector: Graflex
Overhead projector: MMM Company
Overhead projector cart: Wilson
Projector screen: Radiant Wall Master
Tachisto - filmstrips and flasher: 5 programs - Learning Through Seeing
Tachisto - viewer: Learning Through Seeing
Tape recorder: Voice of Music
Thermo Fax copy machine

Materials:

Frostig program for the development of visual perception
Science Research Associates Reading Labs I, Ia, Ic, Elementary; Pilot Library IIIb; Reading for Understanding; Reading Accelerator - Model III
Sound and patterns of language lab - Holt, Rinehart & Winston
Transparencies (101 different) 2 boxes with carrying cases - Cambosco Creative Visuals

Evaluation

A. Measures of Achievement

The evaluation report (Milwaukee Public Schools, 1967) states that:

> Reading achievement was measured by reading center teachers in a random sample of all reading center par-

ticipants in eight project schools during the first semester and all reading center participants in project schools during the second semester. Students in the first semester sample were given the California Reading Test (silent reading) and the Wide Range (oral reading). These students were tested in September and again in January. This procedure yielded a total of 316 students who took both tests (pretest and posttest) in silent reading achievement and 318 students who took both tests in oral reading achievement. Of these totals 41 and 42 students respectively were from non-public schools.

The schools in the second-semester sample furnished similar data to the first-semester sample except that students were tested on the date when they entered the reading center and again on the date when they completed their instruction. That is, some of the students were in the reading center for two semesters, some for one semester, and a few for intermediate periods of time. The second-semester testing scheduled yielded 529 students who had taken both tests (pretest and posttest) in silent-reading achievement and 481 students who had taken both tests in oral achievement. The data were analyzed by computing the reading grade-equivalent when the student was pretested and again when posttested. A gain in reading grade-equivalent could then be determined by comparing these two scores. Mean gains in grade-equivalents were then determined, and these were compared to test norm data.

The results of the first semester testing are given in Table 35.

Table 35

FIRST-SEMESTER READING GAINS FOR
SAMPLES OF PUPILS IN THE READING CENTERS

Test Sample	Silent Reading N	 Mean Gain	Oral Reading N	 Mean Gain
Public School Pupils	274	0.65 years	277	0.61 years
Non-public School Pupils	42	0.60 years	41	1.18 years
Combined Samples	316	0.64 years	318	0.69 years

[Source: Table 2, p. 13, Milwuakee Public Schools (1967]

The gains reflected in Table 35 are those obtained by pupils who had attended the centers for a maximum of 5 months, some less. Their expected gain, as underachievers, would be about .35 years in that period.

> The second semester data substantiate the findings in the first semester design. For this analysis the public and non-public children were not separated into groups for data analysis. The prime difference between the data from the two semesters is that many children in the second group were in the reading center for more than one semester. By actual tabulation, the mean reading-center attendance for the second group was 0.74 years (approximately 1 1/2 semesters). The mean gain in silent-reading achievement for this group was 0.76 years for the sample of 529 pupils, and the mean gain for oral-reading achievement was 0.89 years for 481 pupils.

These gains must be compared with expected gains for these pupils of about 0.50 years in that period of 0.74 years.

While no test of significance was possible with the data available, the considerable excess of actual over expected gain indicates the success of this program in providing measured benefits of cognitive achievement.

B. Other Evaluation Indices

A locally devised instrument was used to test changes in student attitude in three randomly selected centers in the first semester's program. No significant changes were detected.

The attitudes of a random sample of school personnel toward the program were tested by questionnaire. The results showed that these teachers felt the program was effective in areas related to reading, and that it complemented their own reading instruction.

C. Modifications and Suggestions

The program staff suggested that a more comprehensive and integrated program would be even more effective than this one. They thought that medical diagnosis of visual, auditory, and other defects would be desirable for the pupils before they entered the centers; that a social worker to visit homes of children with emotional problems in reading would help; and that a guidance counselor should be appointed for each center to maintain communication between the center and the pupil's classroom.

Budget

The total cost of the program in 1966-67 was about $130,000 not including overhead or evaluation costs. Of this sum about $2500 was spent on materials and equipment, but that figure takes into account amortization of equipment over 5 years. Accommodation was available in the schools, and not charged to the program.

To replicate the program would not necessarily cost the same, for obvious reasons. The number of centers established would determine the number of supervisory staff as well as of instructional personnel. The cost per child per year would probably be over $150.

Quoted Sources

Milwaukee Public Schools. Strengthening reading services through increasing provisions for elementary reading centers. Milwaukee: Milwaukee Public Schools, Division of Curriculum and Instruction, 1967.

For More Information:

Mr. Melvin Yanow
5225 N. Vliet Street
Milwaukee, Wisconsin

THE SCHOOL AND HOME PROGRAM OF FLINT, MICHIGAN

Introduction

This program, "School and Home: Focus on Achievement" was an experimental program designed to raise the academic level of underachieving elementary school children by involving parents in the daily reading exercises and study habits of their children.

The children were Negroes primarily from low-income families living in the industrial city of Flint, Michigan. With few exceptions, the parents of these children had come from the rural South to seek employment in local industrial plants. Their educational backgrounds were quite limited.

The experiment was undertaken in two elementary public schools during the 1961-62 school year. It involved approximately 1,100 children enrolled in kindergarten through grade six. In the fall of 1962, this program was expanded to a third elementary school in Flint, and the total population in the experimental group became 2,300. Data for the third school is not available.

A control group was established in another Flint public elementary school and was composed of children who represented socio-economic backgrounds similar to the experimental group.

The Gates Reading tests were used to measure the effectiveness of the program, which was indicated by the greater increase in vocabulary and comprehension scores of the experimentals over the controls.

Personnel

A. Central Office Consultant

A consultant in the employment of the Flint Community Schools designed the program. For replication of this program, a coordinator will be required to take the place of this consultant in organizing and implementing the program.

B. Teachers. (Voluntary, part-time.)

Second- and fifth-grade teachers taught in the program on a daily basis integrated with their normal teaching duties. Besides meeting with the parents (see under Methodology), they also gave the children daily reading assignments, word lists, and suggested books the children might like to read.

C. Secretary. (Part-time.)

For typing, duplication, and other clerical duties.

D. Volunteers.

Mothers put in occasional duties as home visitors, home counselors, and attendance officers.

Methodology: General

The experimental program was based upon a rationale described by Smith (1963) as follows:

> The theoretical frame of reference for the study is based on the [theory] that the group in which the individual is socialized influences his motivation to achieve in school.
>
> It seemed that a program designed to raise the achievement of children who lacked the necessary motivation to achieve adequately must involve working with these children's "significant others" [defined as those people who are important to an individual] for the purpose of getting them to expect more of these children. The students were expected to "internalize" the expectations of these "significant others" and, therefore, to expect more of themselves. It was predicted that this change in their attitudes and values would take place as they learned their values from "significant others."
>
> The "significant others" for elementary school children were assumed to be parents and teachers.

The parents were made to realize that their attitudes and values greatly influenced those of their children and that unless they were aware of these values, they could not set the kind of example that would bring about desirable attitudes and habits toward schoolwork. In addition to getting parents involved with their own children, some of the parents worked to get all parents involved in the program by making home calls, followed up by telephone reminders. The result of this effort was greater participation by parents than anticipated by the program's initiators. The parents were asked to do these things (Flint, 1963):

a) Provide a quiet period in the home each day for reading and study assigned by the teacher.

b) Read regularly to their children, including preschool-age children.

c) Read regularly in the presence of their children.

d) Listen to their children read.

e) Show interest in their children's work by asking questions and giving praise when deserved and encouragement when needed.

f) Prevent the school-age child's work from being damaged or destroyed by preschool-age children.

g) See that the child has pencils and paper at school and at home so that he has the tools necessary for doing a good job.

h) Get the child to bed at a regular time each night so that he gets the proper sleep and rest.

i) Get the child up each morning with adequate time for a good breakfast.

j) Remind the child of work papers, books, etc., that should be returned to school. (Young children need this assistance.)

k) Have the child leave home with the attitude of going to school for the purpose of learning.

Teachers met with parents and explained the objectives of the program and the participation expected from the parents. The teachers also met with each other on a monthly basis to discuss progress of the program, problem areas, and materials and techniques used in the program. The teachers performed the activities normal to school instruction such as daily assignments, wall charts on assignment performance, sending books home with students, teacher/parent conferences as required, and directions to the clerical help for typing and duplication.

Methodology: Specific

A. Read-Aloud Program

Parents were encouraged to read with their children in order to stimulate interest in reading and to show the children that reading is important to parents. This not only improved reading performance but also allowed parent-child interactions conducive to a more desirable family relationship. The Read-Aloud Program consisted of orientation of the parents at the introductory meeting with teachers and instructions on a sheet and in a booklet. A 3 x 5 card imprinted with the title of each study step was also included in these materials as a study/instruction aid. The Instruction Sheet for the parent looked like this (Flint, 1963):

HOW -- PARENTS CAN HELP THEIR CHILDREN STUDY READING WORDS

Children benefit from studying with another person as well as from individual study. This other person may be a class mate, an older child, or a parent.

It is very encouraging to children to have a parent spend some time with him while he is studying. We must always keep in mind that it is the child who must do the studying not the parent. The parent only assists and gives encouragement.

When you help your child study his reading words, we suggest that you and the child follow the study steps. Listed below are these study steps as well as suggestions about what the child should do and what the parent should do.

The child should:	STUDY STEPS
1. LOOK AT THE WORD	- Look at only one word at a time. - Think about its shape and how it begins and ends.
2. SAY THE WORD	- Say it softly. Think about how it sounds.

3. TELL WHAT IT MEANS - The meaning should be in your own words.

4. TRY TO USE IT IN A SENTENCE - Your sentence should be a good sentence -- it should make sense.

5. CHECK THE WORD - Check to see that you have given the correct meaning and used it in a sentence.

If you made a mistake, start with Step 1 and go through the steps again.

The parent should:

1. Sit close to the child so that you can see what the child is doing.

2. See that the child pronounces the word correctly.

3. Help the child check his word so that he does not learn the wrong meaning for it. If this happens, encourage him to go through the study steps again until he:
    a. can say it correctly
    b. can say the meaning in his own words
    c. can use it in a sentence

Remember that you always can help your child more when you are patient and not hurried.

In addition to the above instructions, a booklet titled "Read Aloud to Your Children" was given to the parents. In this booklet, the How, When, and What of reading as well as the motivational techniques for both parent and child were presented. To stimulate reading of new books, lists of books for various grade levels available at the local Flint Public Libraries were included.

B. Bookworm Club

A reading incentive program called the Bookworm Club was initiated in this program. Children in grades two through six were given a tally-sheet on which they placed stickers provided for the 15 segments of a "bookworm" - one for each new book read. This program allowed each child to earn a "bookworm" lapel button when six segments were covered, and a "diploma" when all 15 were covered. Children were also given a booklet called "My Reading Record" in which they would write the author, title, publisher, data, and a summary of each book they read.

C. Materials provided for home study

A child's dictionary was made available to each family with a child in grade 4, 5, or 6. To provide special help with vocabulary development, each child was provided with a file box for word cards. Each child recorded on a card in his file box every word that caused difficulty. He was encouraged to study his words at school and to take them home for study. In addition to the dictionaries and file cards, multi-level reading materials were provided for the children.

D. Reading booklets

Reading booklets for the children were made by cutting up primary level reading textbooks which were no longer used by the schools. Individual stories from these books were stapled together between colorful covers and decorated with pictures.

Children who have trouble reading resist thick books because they lack confidence in their reading abilities. These children will readily read the one-story booklets which have no grade-level identification. Older children will read these stories, not aware that many of the stories contain preprimer level vocabulary. The children develop a feeling of accomplishment and, therefore, gain self-confidence.

Mothers did the cutting and stapling of the one-story booklets and they felt a sense of participation in the reading program of their children. The children were aware of their mothers' participation, and this stimulated additional interest and interaction on the part of children and parents.

Evaluation

A. Measures of Achievement

All students, both in the two experimental groups and the control groups, were given Form 1 of the Gates Revised Reading Tests as pretest and Form 2 as posttest. This test measures the reading vocabulary and reading comprehension of primary school children.

In the first evaluation, the tests were administered in November 1961 and May 1962. The normal gain in reading age over that period was expected to be 5 months. The results are shown in Tables

Children in the two experimental schools showed overall gains of 5.4 months in reading during the 5-month period (time between pre- and posttests). Children in the control school showed overall gains of 2.7 months in reading during this period. Gains made by experimental school C were generally greater than those made by experimental school B, which entered the program later than experimental school C. Children in all schools showed greater gains in reading vocabulary than in reading comprehension. Since reading comprehension encompasses a broader base than vocabulary, equivalent progress in comprehension can be expected as more time elapses.

Tables 36 and 37 compare vocabulary and comprehension mean gains made by second-grade children in the two experimental schools with those made by children in the control school. Children in the two experimental schools made greater mean gains in vocabulary and comprehension than did children in the control school. The mean gain differences are highly significant (at the .01 level using Z-scores) for vocabulary for experimental schools B and C when compared with control school A. The mean gain differences for comprehension are also highly significant for experimental school C but are not significant for experimental school B.

Table 36

MEAN GAINS IN VOCABULARY FOR SECOND-GRADE PUPILS
IN THE SCHOOL AND HOME PROGRAM, 1961-62

Schools	N	Mean Gains	p
Control A	66	3.6	
Experimental B	82	5.5	.01
Experimental C	71	5.8	.01

[Source: Table 1, page 8, Flint Public Schools (1963)]

Table 37

MEAN GAINS IN COMPREHENSION FOR SECOND-GRADE PUPILS IN THE SCHOOL AND HOME PROGRAM, 1961-62

Schools	N	Mean Gains	P
Control A	68	4.1	
Experimental B	82	4.9	N.S.
Experimental C	71	7.1	.01

[Source: Table 2, page 9, Flint Public Schools (1963)]

Tables 38 and 39 compare vocabulary and comprehension mean gains made by fifth-grade children in the two experimental schools with those made by children in the control school. Table 38 shows that children in the two experimental schools made significantly greater gains in vocabulary than did children in the control school. Table 39 shows that the gains made in comprehension are moderately significantly greater for children in experimental school C but not significantly greater for children in experimental school B.

Table 38

MEAN GAINS IN VOCABULARY FOR FIFTH-GRADE PUPILS IN THE SCHOOL AND HOME PROGRAM, 1961-62

Schools	N	Mean Gains	P
Control A	63	1.4	
Experimental B	70	6.4	.01
Experimental C	54	6.1	.01

[Source: Table 3, page 9, Flint Public Schools (1963)]

Table 39

MEAN GAINS IN COMPREHENSION FOR FIFTH-GRADE PUPILS IN THE SCHOOL AND HOME PROGRAM, 1961-62

Schools	N	Mean Gains	p
Control A	63	1.8	
Experimental B	70	1.3	N.S.
Experimental C	54	5.7	.05

[Source: Table 4, page 10, Flint Public Schools (1963)]

A comparison of gains made when vocabulary and comprehension are combined shows that second-grade children in the two experimental schools made significantly greater gains than did second-grade children in the control school. (See Table 40).

Table 40

MEAN GAINS IN COMBINED VOCABULARY AND COMPREHENSION FOR SECOND-GRADE PUPILS IN THE SCHOOL AND HOME PROGRAM, 1961-62

Schools	N	Mean Gains	p
Control A	63	3.9	
Experimental B	82	5.1	.05
Experimental C	71	6.4	.01

[Source: Table 5, page 10, Flint Public Schools (1963)]

A comparison of gains made when vocabulary and comprehension are combined does not show significant differences for fifth-grade children in experimental school B when compared with control School A (see

Table 41). Highly significant differences are disclosed, however, for fifth-grade children in experimental school C.

Table 41

MEAN GAINS IN COMBINED VOCABULARY AND COMPREHENSION FOR FIFTH-GRADE PUPILS IN THE SCHOOL AND HOME PROGRAM, 1961-62

Schools	N	Mean Gains	p
Control A	60	1.7	
Experimental B	70	3.7	N.S.
Experimental C	53	6.0	.01

[Source: Table 6, page 10, Flint Public Schools (1963)]

These gains represent a trend which was maintained in the 1962-63 academic year, although no official evaluation or detailed statistical analysis and interpretation was carried out after 1961-62.

B. Other Evaluation Indices

One questionnaire was sent to each family in the two experimental schools to ascertain what opinion parents held about this program. Parents indicated that they felt the program helped the children with school work and that they would like to have the program continued. They also indicated that their involvement had been very helpful to them as well, indicating that it helped them improve their academic skills.

A survey was undertaken in the two experimental school communities to determine if parents had set aside a quiet time in the home for home study and for reading. Results of this survey showed that 90 percent of the children in the two schools returned completed questionnaires to their teachers.

Teachers said they noted improvement in children's work habits and in their attitudes toward school work.

C. Modifications and Suggestions

Summer Activities

At the end of the spring semester, 1962, the parents were given instructions for the continuation of the "Focus on Achievement" program into the summer months. Many activities, in addition to the daily "quiet-time" for reading and studying, "read-aloud" between child and parent, and check-out of library books practiced during the school year, were suggested. Some are listed here:

a) Subscribe to Summer Weekly Reader

b) Encourage children to listen to news items, and discuss these with them.

c) Work daily on the list of words, adding new words gained from library books.

d) Take children on trips that provide learning experiences (airport, radio and TV stations, planetarium, zoo, bridges, art centers, libraries, etc., were suggested).

e) During family discussions, use the dictionary and encyclopedia.

f) Have children keep a diary and report on any trips taken.

Budget

The total per pupil costs for 1961-62 and 1962-63 together, not counting salaries, was $3.50. Total expenditures for the 2 years amounted to approximately $8,400, excluding the services of the central office consultant, secretary, and typist. These were either paid on a part-time basis or were voluntary. There were no teachers' salaries to be paid, as the teachers volunteered to help in the program.

The total expenditure for the 1961-62 year was $1,600 for 1,100 students in two schools. The largest item of expense for this year was the children's dictionaries. The total expenditure for the 1962-63 year was $6,800 for 2,300 children in three schools. The largest items of expense for this year were SRA reading materials, typewriters, and workshop materials. Items purchased for the program were: dictionaries for all students, metal file boxes and 3 x 5 vocabulary cards (as a vocabulary learning aid), Gates Reading Tests, Bookworm Club materials, typewriters, alphabet guides, 3 x 5 lined cards, SRA reading materials, and workshop materials.

Quoted Sources

Flint Public Schools. School and home: Focus on achievement. Flint, Michigan: Description of Focus on Achievement Program and Instruction Sheets for parents and teachers, 1963.

Gordon, E. W. and Wilkerson, D. A. Compensatory education for the disadvantaged. New York: College Entrance Examination Board, 1966.

Smith, M. B. and Brahce, C. I. When school and home - focus on achievement. Educational Leadership, 1963, 20, 314-318.

Other Sources Not Quoted

Smith, M.B. Reading for the culturally disadvantaged. Educational Leadership, March 1965, 22.

Smith, M.B. Curriculum innovation for disadvantaged elementary children - what should they be? Teachers College Journal. October 1965, 37.

For More Information

Dr. Mildred B. Smith
Area Director of Elementary Education
Administration Building
Flint Public Schools
Flint, Michigan

THE PROGRAMMED TUTORIAL READING PROJECT OF INDIANAPOLIS, INDIANA

Introduction

First-graders were tutored in reading by para-professional personnel whose behavior was tightly programmed. The program was meant to be maximally sensitive to the progress of the individual child, while relieving the tutor of professional teaching decisions.

The children were from deteriorated city-center areas, typified by crowded, multi-family units. Of 1,200 receiving instruction in 1967-68, approximately 700 were Negro and 500 Caucasian, many of the latter being of Appalachian origin.

The program was developed through several years of experimentation by Indiana University before being initiated in the Indianapolis Schools in 1965. In 1966-67 there were approximately 800 students and 78 tutors in 30 schools; in 1967-68 there were 1,200 students.

On several measures of reading, children receiving programmed tutoring were superior to a control group and to a group receiving conventional tutoring.

Personnel

A. Professional Director. (Part-time. This party was the originator of the program and was responsible for research; he was not a school district employee.)

B. Head Supervisor. (Full-time. Three years of college, and experienced as a programmed tutor.)

She assumed general budgetary and administrative direction of the program.

C. Field Supervisors. (One for every 20 to 22 tutors; 30 hours per week.)

These people supervised the tutors in 6 to 10 schools, checking to see that they adhered to the prescribed procedures. They cooperated with school personnel in arriving at those professional decisions which had to do with the project in each school.

D. Tutors. (In 1966-67 there were 78 tutors; about one-half worked 3 hours per day and one-half worked 5 to 6 hours per day. Approximately half were Negro and half, Caucasian. About half were from inner-city and half, from suburbs. They had high-school education or more, but no professional training or experience.)

E. Secretary. (Full-time.)

Methodology: General

Programmed tutoring was used as a supplement to the regular reading instruction in first-grade classrooms. The pupils worked individually with the tutor for one or two 15-minute sessions per day, and with the same tutor all year.

The reading material used in this project was the Ginn Basal Reader Series, although other beginning reading series could be used in the same way. Some specially prepared reading matter was also used. All of these materials were arranged into lessons which in turn were divided into items. An item might consist of a phrase, a sentence, or a paragraph, depending upon how far along the child was in the year's sequence of lessons. The lessons and items were designated by numbers and letters which were entered in the margin of the book at the start of the year. To proceed through the year's sequence of lessons, the tutor consulted a separate master list which showed the lessons in order and the pages on which each appeared in the readers. When she turned to these pages, the marginal lettering and markings indicated the sequence of items in the lesson (15 items or less comprised a lesson).

The above materials were referred to as "content" programs: they presented the content to the learner and told the tutor the sequence of items and lessons. But they did not tell her what to do with the items and lessons. This was up to the "operational" programs. These consisted of nine different item programs and a single lesson program.

Each item program had a specific learning objective. Two of the programs dealt with sight-reading and were the first used, so that the child learned to identify and pronounce printed words, singly or in sentences. Six of the programs dealt with comprehension and were the next used, so that the child learned to understand the meaning of sentences and larger units as he read them. The final item program dealt with word analysis, so that the child learned to "sound out" new words, using his previously acquired sight-reading and comprehension skills. All of these were used in tutoring word analysis. The programs for comprehension and word analysis were provided in the separate specially written books designed to supplement the readers.

These programs were used in a cyclic manner throughout the year. For instance, item program No. 1, Sight-reading, was used with a page of a pre-primer to guide the tutor and child through several words (one item). It was then used with several more items until a lesson was completed, comprising several pages of the pre-primer. Then it was used repeatedly to complete several more lessons. These were followed by comprehension and word-analysis lessons, each composed of items that were taught by appropriate item programs. Then, there was another cycle of sight-reading, comprehension, and word analysis lessons at a higher level of reading skill and perhaps with a new book. A number of such cycles comprised the year's program.

Item programs can be explained further by illustration, using item program No. 1, Sight-reading. The tutor conformed to five steps in this program. Steps 1, 3, and 5 were test steps, used to ascertain which words of the item could be sight-read by the child. Steps 2 and 4 were teaching steps.

In Step 1, the tutor asked the child to read a specific item in the primer or other designated book. If the child made no errors, the tutor praised him and proceeded immediately to Step 1 of the next item. Otherwise, she recorded each word on which the child erred and went to Step 2 without comment.

In Step 2, the tutor employed an alphabetical list containing, among others, all the words from the item. She pointed to a word which had been missed and asked the student to point to the same word in the book. If necessary, she offered specified prompts until he did so correctly. She then asked him to pronounce it. If he could not, given appropriate time and specified prompting, he was told the word, and said it himself. This was done for each word missed in Step 1.

Step 3 was similar to Step 1, with the child asked to read the entire item once again.

Step 4 aimed to teach the words still missed in 3. The tutor then said the word and asked the student to point to that word on the alphabetical word list. When this had been done correctly, he was asked to pronounce it. Again, the tutor obtained a correct response before going on to the next word or step.

Step 5 was similar to 1 and 3. If there were still errors, the tutor recorded this on a "Tutoring Record Sheet" and went on without comment to Step 1 of the next item. Any items which the student did not complete without error were repeated at a later time.

Just as one of the item programs guided the tutor through an item, the single lesson program directed her in combining the items into a lesson. Briefly, the structure of a lesson was as follows: On the first run, the tutor and learner went through all items prescribed for that lesson. On the "Tutoring Record Sheet," the tutor noted the items on which there were still errors outstanding. The second run consisted of those items only. Each succeeding run presented only the items missed on the preceding run. When all errors were eliminated from the progressively shorter runs, the tutor circled an x on the record sheet and began again with a complete run. The entire process was repeated until there was a complete run without error, or until ten x's had been circled. At that point the lesson was terminated.

The tutor then consulted the master list. This told her the book and pages where she would find the next lesson, and it told her which item program(s) to use in the lesson.

Some of the rationale of the program is implicit in the above description, and has been made explicit by the project personnel as well. It can be seen that the program contained many elements of programmed instruction: frequent and immediate feedback to the learner, specified format, and individualized pace. While orthodox programmed instruction has often employed errorless or near-errorless learning, with many cues at first, followed by a fading of cues, this project proceeded in the opposite manner, with minimal cueing at first, followed by increased prompting until the learner could eventually make the correct response. In that way the project represented a form of guided discovery learning on the items not initially known, and eliminated unnecessary practice on the items which were initially known. Emphasis was on success and not on failure. The student was praised when he had an entire item correct, but not told "No" or "Wrong" when incorrect. He had repeated opportunity to reach the criterion of complete success before going on to the next item or lesson, but was not kept at a task which he repeatedly failed. He might return to the task at a later time, however. (Here the learning principle of spaced vs. massed practice seems to be implicit.)

The tutor usually met with a child outside the classroom. It was found that space requirements were not difficult: a lighted cloakroom or a movable partition screen in a hallway was satisfactory for tutoring sessions. The tutor brought all materials needed for the lesson: the item and lesson programs (which the tutors came to master so that frequent reference to them was unnecessary), the master list, the pupil's record sheet, the alphabetical word lists, the basal readers, and the comprehension and word analysis books, marked into lessons and items.

It was expected of the tutor that she provide the classroom teacher with information on the children as requested (but that she not offer pedagogical advice). It was expected that she honor the confidential nature of such information, and that she adhere to the dress standards of the school's professional personnel.

Tutors were recruited by notices in PTA bulletins and by word of mouth. They received 18 hours of group instruction along with on-the-job supervision. Twelve hours of the group instruction was preservice matched by 12 hours of related home study. The other 6 hours occurred during the first 2 months of tutoring.*

Methodology: Specific Examples

A. The "Statement Comprehension" program was one of the 6 item programs dealing with comprehension. (The other 5 were Instruction Comprehension, Question Comprehension, and Logical, Completion, and Story Comprehension.)

The "Statement Comprehension" program required the child to read a statement and a question orally and to give an acceptable oral answer. The object of the program was to obtain such an answer to the question, based on the statement above it. If the child offered such an answer at any time during the program, he was given a word of praise and the tutor went on to the next item, even if the child had not yet correctly read the statement and question.

In Steps 1 to 5, the previously-described Sight-Reading program was applied to the statement and question together as a unit. The objective was to elicit a complete, correct reading of statement and question, and to give the child an opportunity to answer the question.

When the child had read correctly, and if he had not yet answered correctly, he proceeded to Step 6. Here he was encouraged to answer, and the tutor gave specified prompts to this end.

In Step 7, the child was shown a 3-foil multiple-choice answer to the questions. If he did not read or point to the correct answer, the tutor went to Step 8. If he did not read correctly, but pointed correctly, the tutor went to Step 9.

---

* Detailed suggestions for tutor training are included in the supervisor's manual. This has been prepared for commercial distribution, along with the Tutor's Guide (which contains detailed instructions for the operational programs the tutor must learn) and related material, by Ginn and Company.

In Step 8 the tutor offered prompts until the student could point to the correct answer. In Step 9 she attempted to elicit a correct reading of the answer. She used the Free-Reading program for any words which offered difficulty. If the child still did not read the answer correctly, the tutor went to the following item, Step 1. The incorrect item was tried again on a subsequent run through the lesson.

B. The Logical Comprehension program followed a format almost identical to that above, except that two statements preceded the question, and the answer had to combine information from both statements.

C. The Free-Reading program was a simplified Sight-Reading program, used when the child knew all but a few of the words in the material to be read. He was asked to read a chapter or story and was interrupted only when an error occurred. The sentence in which it occurred then became the item. In Step 1 the child re-read the sentence and the tutor recorded the word(s) missed. In Step 2 she pointed to each incorrect word and asked the child to say it. She told him any word he could not say on this step, and he repeated the word. In Step 3 the student read the entire sentence and went on. Any sentences still containing errors in Step 3 were encountered again in the second run through the lesson, which would contain only the sentences with errors still outstanding.

Evaluation

A. Measures of Achievement

The most complete research report on this project is that for the 1965-66 school year. It includes results on a number of tests, and compares the following experimental treatments: 1) programmed tutoring, one 15-minute session per day; 2) programmed tutoring, two sessions per day; 3) directed tutoring, one session; 4) directed tutoring, two sessions. (Directed tutoring was a more traditional form of individual instruction; the tutors received supervision from reading specialists; Ginn and other materials were used.)

There were 43 students in each experimental group; at the end of the year their reading achievement was compared with matched controls from the same classrooms but who had received no tutoring. Although subjective evaluations of observers were quite favorable regarding all four experimental treatments, only group (2) - programmed tutoring, two sessions per day - was found to be generally superior to its controls. The results pertaining to the efficacy of this treatment are summarized in Table 42.

Table 42

GROUP MEAN SCORES FOR EXPERIMENTAL
(TWO-SESSION PROGRAMMED TUTORING) AND CONTROL GROUP

Test	Group Mean Score Experimental	 Control
Metropolitan Readiness (pretest)	45.4	45.5
Peabody Picture Vocabulary	58.3	58.5
Mauser Aural Sentence Comprehension	44.3	44.3
Ginn Recall	14.4	13.1*
Alphabet	26.6	24.5
Ginn Pre-primer (A)	29.9	27.3*
Ginn Primer (B)	62.6	54.2*
Stanford Reading, Total	78.2	74.2

* Significant, .01

It can be seen that the two groups were initially equal on the pretest, but that the experimental group was significantly superior on three of the seven posttests. (By contrast, the other three experimental groups were significantly superior to their control groups in only two of 21 comparisons.) The authors point out that the Ginn tests are more specifically related to the content of the tutoring than are the other measures, and that this may account for the differences having appeared on the Ginn tests. They also point out that the experimental-control difference on the Ginn tests is actually greater than the means in Table suggest. This is because the Ginn tests are multiple-choice, so that a relatively large component in each mean score is attributable to guessing or chance. If this component is subtracted from both the experimental and mean control scores, the remaining figures represent the "non-guessing" component, or adjusted score. The adjusted experimental scores are 20 percent larger than the adjusted control scores (73 percent among those in the first quartile of each group).

When the Ginn subtests (vocabulary, comprehension, and word analysis) were considered separately, it was found that the superiority of the two-session group over its control group was maintained on each subtest at the .01 significance level.

Programmed and directed tutoring were also compared; that is, the 86 students receiving programmed tutoring (43 in the one-session group plus 43 in the two-session group) were compared with the 86 receiving directed tutoring. Those receiving programmed tutoring were superior on all posttests. This difference was highly significant (.01) on four tests (Ginn Recall, Alphabet, Ginn Pre-primer, Ginn Primer) and was also significant (.05) on the Stanford Reading total.

A 1966-67 evaluation further investigated the issue of, one vs. two tutoring sessions per day. Comparison was made among three groups: one session, two-sessions, and control, with approximately 130 students in each group. For each group the mean scores on the Ginn Pre-primer, Primer, and First Reader tests were combined into a single group mean, and adjustment was made for guessing. The adjusted mean of the one-session group was 46 percent higher than that of the control group; the adjusted mean of the two-session group was 51 percent higher than that of the control group.

B. Other Evaluation Indices

Project personnel have commented that tutors seem to gain personal satisfaction and increased self-confidence from the program, and "something over 20 percent of them spoke of plans to go back to school for professional training as teachers."

C. Modifications and Suggestions

Project personnel have recommended that the programs be adapted for use with the same basal reader series being used in the regular classroom instruction; they feel it is overly difficult for disadvantaged children to make simultaneous use of two different reader series. The program developers at Indiana University are currently adapting the program to other series in addition to Ginn.

Budget (1966-67)

1	Head Supervisor	Full-time
4	Field Supervisors	30 hrs/week
78	Tutors	(1/2 for 3 hrs/day; 1/2 for 5-6 hrs)
1	Secretary	Full-time
1 set/tutor	Materials	$20/set*
	Office Supplies	$500
	Travel of Field Supervisors	$2,000

---

* $4 to $7 per year; a set lasts 3 to 5 years. Materials costs were 1 percent or 2 percent of the personnel costs.

Quoted Sources

Ellson, D. G., Harris, P. and Barber, L. A field test of programed and directed tutoring. *Reading Research Quarterly*, 1968, *3*, 307-367.

Other Sources Not Quoted

Ellson, D. G. *A report on programed tutoring: Pre-convention Institute VI: use of para-professionals in the teaching of reading*. Bloomington, Indiana: Indiana University, April 1968.

Ellson, D. G. *Report of results of tutorial project: 1965-66*. Bloomington, Indiana: Indiana University, December 1966.

Ellson, D. G., Barber, L., Engle, T. L. and Kampwerth, L. Programed tutoring: a teaching aid and a research tool. *Reading Research Quarterly*, Fall 1965, *1*,(1)(?), 77-127.

Indianapolis Public Schools. *Free-reading item program*. Indianapolis, Indiana, Indianapolis Public Schools, March 1968.

Indianapolis Public Schools. *Report of results of tutorial reading project: 1966-67*. Indianapolis, Indiana: Indianapolis Public Schools, July 1967.

Indianapolis Public Schools. *Programed tutoring: an educational and social innovation*. Bloomington, Indiana: Indiana University, May 1968.

Indianapolis Public Schools. *Notes for proposed programed tutoring project - Indianapolis: summer 1967 through school year 1967-68*. Indianapolis, Indiana: Indianapolis Public Schools, 1968(?).

Indianapolis Public Schools. *Supervisor's Manual*. Indianapolis, Indiana: Indianapolis Public Schools. (Undated.)

For More Information

Dr. Douglas C. Ellson
Psychology Department
Indiana University
Bloomington, Indiana

Mrs. Mary Nelson, Head Supervisor
Programed Tutorial Reading Project
Roosevelt Annex, 1644 Roosevelt Avenue
Indianapolis, Indiana 46218

5

TEACHER EXPECTATION IN SOUTH SAN FRANCISCO

Introduction

Teachers of an elementary school were told that the results of a test administered in their classrooms indicated that certain children would show unusual intellectual gains during the coming academic year. The children marked for rapid improvement were, in fact, chosen randomly without regard to their test scores. After the tests were administered, the teachers were given the names of those children predicted to show accelerated achievement. No additional instructions were given to the teachers. At the end of the experimental period the same test was given to the students.

The students attended an elementary school in South San Francisco and they "came from a preponderantly lower-class community. Many of the children were from broken homes where their mothers worked and/or the family received welfare funds.

"One sixth of the school's population of 650 consisted of Mexican children and the children of one Negro family were enrolled (Rosenthal, 1968)." Enrollment was fairly unstable (turnover for the school is 30 percent per year) since the fathers of this group moved around to get employment.

The elementary grades from one to six were part of this program. Over 500 children were pretested, and 370 children were posttested. The first test was given in May, 1964 after which the teachers were told of the "bloomers". A mid-year test in January, 1965, and a posttest in May, 1965, were given. From the differences of the May, 1964, and May, 1965, tests, gains attributed to the experimental variable were determined.

A follow-up test in May, 1966, was given to determine if the children carried any residual effects on achievement onto later years of schoolwork.

The Flanagan (1960) Tests of General Ability (TOGA) were administered at each test time. The results of these tests indicated a large, significant increase in IQ in the experimental children over the rest of the children in the class during the academic year.

After 2 years, the increase in total IQ scores by all experimental children was not significantly greater than the increase by all the control children.

Personnel

A. Project Administrator. (Part-time; a professor of social psychology.)

He assumed responsibility for the design and techniques used in the project as well as reduction of data and preparation of final report.

B. Classroom Teachers. (20 full-time; certificated by the State of California with average teaching experience of 7.7 years.)

The classroom teachers administered four series of the test. They did not actively participate in the experiment in any other manner.

C. Research Assistants. (Part-time.)

Their only duty was to score all the tests.

Methodology: General

The teachers were asked to administer a series of tests to all the children in their classrooms, and they were told that the test used in the series was called the "Harvard Test of Inflected Acquisition". This test, they were told, was designed to predict which children were ready to "spurt" or "bloom" academically in the coming year. The test was actually Flanagan's (1960) Test of General Ability (TOGA) and measured nonverbal intelligence of young children. The first test (pretest) occurred in May, 1964 (see Diagram).

In September of the same year, just before the teachers were to meet their new classes, they were given a list of students' names who had supposedly performed on the pretest in the top 20 percent. In actuality, these children were selected randomly from the entire school population who had taken the pretest in May. The teachers were given no additional instructions nor asked to participate in the experiment in any manner.

The same test was administered again in January, 1965, as a preliminary retest and again in May, 1965, as a posttest to indicate the degree of increase or change in IQ during these periods. A follow-up test was given (without telling the teachers ahead of time) in May, 1966. This test again was TOGA, and was to be used to measure the difference in general ability during the second year of the experimental group and control group children.

Diagram 22

TESTING AND EXPERIMENTAL SCHEDULE FOR THE
TEACHER EXPECTATION AND PUPILS' INTELLECTUAL DEVELOPMENT PROGRAM

DATE:	May, 64	Sept., 64	Jan., 65	May, 65	May, 66
MONTH:	0	4	8	12	24
	Pretest	Experimental Treatment Started	Preliminary Retest	Posttest & Experimental Treatment Stopped	Follow-up Test

Methodology: Specific

Each teacher was given a dittoed copy of the ostensible explanation of the research before the pretest (May, 1964). The explanation was (Rosenthal & Jacobson, 1968, p.66):

> STUDY OF INFLECTED ACQUISITION
> (Harvard-National Science Foundation)
>
> All children show hills, plateaus, and valleys in their scholastic progress. The study being conducted at Harvard with the support of the National Science Foundation is interested in those children who show an unusual forward spurt of academic progress. These spurts can and do occur at any level of academic and intellectual functioning. When these spurts occur in children who have not been functioning too well academically, the result is familiarly referred to as "late blooming."
>
> As a part of our study we are further validating a test which predicts the likelihood that a child will show an inflection point or "spurt" within the near future. This test which will be administered in your school will allow us to predict which youngsters are most likely to show an academic spurt. The top 20 percent (approximately) of the scorers on this test will probably be found at various levels of academic functioning.
>
> The development of the test for predicting inflections or "spurts" is not yet such that every one of the top 20 percent will show the spurt or "blooming" effect. But the top 20 percent of the children will show a more significant inflection or spurt in their learning within the next year

> or less than will the remaining 80 percent of the children.
>
> Because of the experimental nature of the tests, basic principles of test construction do not permit us to discuss the test or test scores either with the parents or the children themselves.
>
> Upon completion of this study, participating districts will be advised of the results.

With these instructions, the teachers were told their children would be tested in May, 1964. They were not told of the follow-up tests which were scheduled for May, 1966.

Evaluation

A. Measures of Achievement

The TOGA has subtests which measure verbal ability and reasoning. Together the scores of these subtests comprise the total score which is expressed in IQ. The gains of the children in this experiment for grades one and two are given in Table 43.

Table 43

MEAN GAINS IN TOTAL IQ SCORES AFTER ONE YEAR ON TOGA FOR PUPILS IN THE TEACHER EXPECTATION AND PUPILS' INTELLECTUAL DEVELOPMENT STUDY MAY 1964 THROUGH MAY 1965

Grade	Control		Experimental		Difference	Significance
	N	Gain	N	Gain		
1	48	+12.0	7	+27.4	+15.4	.002
2	47	+ 7.0	12	+16.5	+ 9.5	.02

[Source: Table 7-1, page 75, in Rosenthal & Jacobson (1968)]

Table 43 shows the increases in IQ scores as measured by the Flanagan (1960) TOGA for grades one and two. Grades three, four, five and six were also tested, but the gains were not significant.

Table 43 shows that the gains made by the first grade children were highly significant and for the second grade children, the gains were significant. The results show that the lower grades benefited considerably from the positive attitude of their teachers, while in the upper grades, performance was not so affected.

Analysis (Rosenthal and Jacobson, 1968, p. 76-85) of the subtests shows other trends: a) classrooms at this school were divided into three tracks. Teachers selected students they felt were the fastest learners, and these were assigned to the top track. The slowest learners were assigned to the bottom track. Gains were made in total IQ and reading IQ, and these gains were distributed evenly among the tracks. No significant gains were made in verbal IQ by any of the tracks. There was a tendency for the middle track, the more average children, to benefit more from being expected to grow intellectually, but the difference could have easily occurred by chance. b) In total IQ, the girls showed a slightly greater advantage ($p<.04$) than boys from having been expected to show an intellectual "spurt"; but this pattern was not present for both subtests. The subtests were verbal IQ and reasoning IQ respectively. The boys showed greater improvement in verbal IQ over the girls ($p<.06$), while the girls showed greater improvement in reasoning IQ over the boys ($p<.0002$). In each case the group who showed greater gains scored higher in that area in pretest. Apparently each group profited more from teachers' attitude in the area of intellectual functioning in which they had already indicated an advantage. c) In general, the gain by the minority children who looked more Mexican was not significantly greater than the rest of the minority children. Experimenters rated the "Mexican-ness" of the minority children's faces and correlated these ratings with the IQ gains by the minority children. The significant correlation was for Mexican boys on their gain in the reasoning IQ scores. This correlation was 75 percent ($p<.05$). For reasoning IQ, those minority boys who looked more Mexican gained more from the favorable expectancies of teachers than did the other minority boys who looked less Mexican. Obviously, the teachers felt the Mexican looking boys were lower achievers and had more to gain by a change of teacher expectancies. d) During the subsequent follow-up year, the first and second grade children in the experimental group lost their advantage over the control group children. The experimental group children in the upper grades, however, showed an increasing advantage over the controls during the second year. Rosenthal and Jacobson (1968. p.176) concluded that:

> The younger children who seemed easier to influence in order to maintain their behavior change. The older children, who were harder to influence initially, may have been better able to maintain their behavior change on their own once it had occurred.

B. Other Evaluation Indices

Gains in reading grades, as reported in the children's report cards at the ends of the first and second semester during the experimental period, were used to measure the increased performance in the experimental and control groups. This comparison showed that the gains of the experimental group over the control group in reading grades was significant for grades one, two, and three and not significantly different for the other grades. This correlation supported the results found in the experiment.

C. Modifications and Suggestions

Of all the programs described in the report, this one is the most difficult to replicate exactly and frequently. Yet it has important conclusions for all compensatory programs to note. The original investigators were well aware of the criticism which they might, and indeed did, encounter through using what some would call deceptive methods. Were the program replicated too frequently, teachers in many areas would become suspicious and perhaps resentful of any researcher who suggested that certain pupils in their classes were due to "bloom" soon. The aim of the original project was not so much to raise the achievement of disadvantaged pupils but to demonstrate the influence of teacher attitudes and expectations on this achievement.

Instead of using a straight replication of this program, districts might wish to acquaint teachers with its conclusions, and then to build into their own programs deliberate activities on the part of teachers which would indicate high expectations of the disadvantaged. A study might be made of the categories of teacher behavior which reflect teachers' expectations of their pupils, and its results used in planning new compensatory programs.

Budget

The treatment in this program was really the conventional classroom teaching. Thence the cost of the program over and above the normal expenses of the schools was limited to the costs of the research team and of the tests. Since the cost of evaluation is frequently omitted from program costing, we might say that the program cost nothing. This would be incorrect, however, since a research team and the tests are vital to the operation of the program in this case. The cost of employing such a team and of the tests (or similar ones) would vary with the locality and the size of group involved, but might be reckoned at about $10,000 for 500 pupils were a close replication planned.

Sources Quoted

Flanagan, J. C. Tests of general ability: technical report. Chicago: Science Research Associates, 1960.

Rosenthal, R. & Jacobson, L. Teachers' expectancies: Determinants of pupils' IQ gains. Psychological Reports, 1966, 19, 115-118.

Rosenthal, R. & Jacobson, L. Pygmalion in the classroom - Teacher expectation and pupils' intellectual development. New York: Holt, Rinehart and Winston, 1968.

Sources Not Quoted

Rosenthal, R. & Jacobson, L. F. Teacher expectation for the disadvantaged. Scientific American, April, 1968, 218, 19-23.

For More Information:

Dr. L. Jacobson
South San Francisco Unified School District
398 B Street
South San Francisco
California

THE SPEECH AND LANGUAGE DEVELOPMENT PROGRAM OF MILWAUKEE, WISCONSIN

Introduction

In this program culturally disadvantaged pupils in seven elementary schools who were exhibiting a lack of oral language ability received intensive assistance from trained speech therapists, up to 3 hours a week. The therapists taught the children in groups of six to eight for up to 15 weeks.

The pupils were drawn from grades one and two, and were in 17 classes in schools situated in poverty districts of Milwaukee designated as a "target area" by the Social Development Commission of that city. The neighborhood is about 70% Negro and 15% Spanish-American, and is characterized by high population mobility and density. The families in it are large, often with either no father or a non-working father. The adults in the families do not communicate much verbally at home or else are seldom present. The children are not usually taken outside the neighborhood. Adults from the area are employed in occupations such as domestic servant, hospital aid, unskilled laborer (seasonal); a large percentage is on welfare.

The Milwaukee Public Schools already employed speech therapists before this program was inaugurated. They were assigned to the schools, and dealt with the conventional type of speech problem such as lisping and stuttering. This program was first implemented in February, 1966, although the evaluation described here covers only the 1966-67 school year. It offered through specially selected speech therapists a curriculum rich in verbal and auditory stimuli, with many opportunities for manipulative and play experiences, and a series of strucural units, all with the aim of teaching skills in verbal usage. Some 273 children were taught in the program in the 1966-67 year.

In the absence of more appropriate measures, the Ammons Quick Test of verbal-perceptual development was used to assess the benefits of the program. Significant gains over control groups were reported for the first experimental sample of 136 pupils.

Personnel

A. Project Supervisor. (Part-time; the Supervisor of Speech Therapy for Milwaukee Public Schools; M.A. and a state license in special education; 20 years of experience in special education as teacher and administrator.)

The supervisor was responsible for the selection of schools, classes and personnel for the program. She also organized the inservice orientation and training of the program staff, ordered supplies and wrote summary reports and budgets when these were needed.

B. Project Speech Therapist. (Full-time; at least B.A. and a state license in speech therapy; chosen for knowledge of the effects of cultural deprivation, of child development, of speech and language development, and of educational and teaching procedures in the kindergarten and primary school; an average of 7 years' experience.)

The chief work of the project speech therapists was with the small groups of children with limited or reduced verbal ability or oral language delay. In addition, they were responsible for some aspects of speech and language evaluation during the program, for the preparation of materials and the planning of activities for speech and language stimulation, and the compilation of materials and the development of techniques which they found to be specially suitable for the program.

Methodology: General

The assumption was made in this program that many children in each of the classes chosen would need help of the kind being offered. Hence the decision was made to allocate pupils from these classes to experimental and control groups on a random basis. To eliminate the few in each class who would certainly have no need of the treatment, the project therapists chose the bottom 85 percent of a rank ordered class list for each class. The rank ordering was based on teacher recommendations regarding verbal ability, the results of a speech articulation test, and the therapists' own judgment. From the bottom 85 percent, pupils were randomly assigned to first and second experimental groups, and to first and second control groups. From any one classroom, some 25 pupils might be in the program, roughly six in each group. The first experimental group received treatment mainly during the first semester, the second during the second.

The stated objectives of the program were:

1. To create in disadvantaged children, who are presenting a verbal language delay, skills in verbal usage which would

enable them to function in competition with middle-class children of like age.

2. To compile a "curriculum" guide of effective techniques developed and employed by the project therapists for use by itinerant therapists and regular classroom teachers.

The experimental group from each classroom met one of the project speech therapists for 45 minutes per day Monday through Thursday, for 15 weeks. During these periods the chief pupil activities were talking, listening and manipulating, in that order of importance. For instance, pupils would talk about who lived in their homes. Then they might listen to a record entitled "Robert and his family." The flannel boards might be used afterwards for the pupils to illustrate what they had said or heard. Thus talking by the pupils might occupy the group as much as 2 hours a week or perhaps 20 minutes for some individual pupils. Listening might occupy 1 hour, and manipulation rather less. The balance varied from group to group and from week to week. Of course, during these therapy periods, pupils in the group were missing normal classroom activities.

Specific examples of typical aspects of the program follow in the next section.

Methodology: Specific Examples

A. "Language Line" was a one-page newsletter designed to acquaint regular classroom teachers and parents with the program. Part of the first issue read:

> The child speaks the language of his environment. You have all heard phrases like the following: "he home," "I ain't had no go," "my mother, she," "all him stuff."
>
> This is indicative of the child's informal language. For this purpose, it fulfills the needs of his immediate environment. Although adept in their informal language, many have not developed the formal language necessary to function adequately in a school setting.
>
> We can define language as the avenue by which we understand, interpret, and communicate both concrete and

> abstract ideas. A child's ability in this area defines and determines who he is, what he is, and what he will become. Retardation in language can, and often does, lead to academic failure and social maladjustment.
>
> As you are probably aware, from your own experience, the following characteristics are often found in the disadvantaged child:
>
> - poor listening habits
> - poor comprehension of the spoken word
> - limited vocabulary (difficulty in labeling and classifying)
> - immature sentence structure, (speaks in phrases, misuse of pronouns, etc.)
> - weakness in abstract thinking
> - poor retention
> - high degree of distractability

B. A unit on the development of oral-verbal language skills was prepared by the staff of the program. This passage is from the introduction:

> Language is acquired through the individual's senses by daily auditory and visual experiential and environmental stimulation. The child hears and imitates the sounds, words, intonations, sentence patterns, and all the subtleties of the language used by those around him. Both the experiences and language to which he is exposed contribute to the quality and quantity of his verbal performance.
>
> Language Deficiencies of Disadvantaged Children
>
> All children learn the language of their environment. Disadvantaged children are no exception, for they have a well-structured informal language. However, many have not developed the formal language used in the school setting. When they enter school, this formal language used by the teacher (and the larger segment of society) sounds almost foreign to them, and they become either acquiescent or tune-out much of the conversation. In this school setting, the following characteristics become evident:

- Limited vocabulary
- Immature sentence structure
- Poor comprehension
- Difficulties in classification
- Inability to see relationships
- Inability to sequence
- High degree of distractability
- Poor retention
- Poor listening habits
- Weak in abstract thinking
- Little imagination

Many children may exhibit some of these characteristics. However, disadvantaged children tend to evidence them to a greater degree and to a greater extent.

C. From the same unit:

The Illinois Test of Psycholinguistic Abilities influenced the thinking of the therapists and assisted them in developing a curriculum. The nine language abilities isolated and evaluated by the Illinois Test of Psycholinguistic Abilities were reduced for project purposes into the following four categories.

Decoding	Memory	Association	Encoding
Understanding both auditory and visual stimuli.	Retaining, reproducing, and recalling what has been heard or seen.	Thinking, reasoning, problem--solving, and seeing relationships.	Expressing oneself through motor and verbal modalities

Activities related to the areas defined in the above table are listed on the following pages. Many of these activities will be familiar to the classroom teacher, but are included to illustrate how they may be used specifically to build and strengthen various language abilities.

Each therapist used the Peabody Language Development Kit as an experimental device in two of her five classes in order to evaluate its effectiveness. It was found to be a very worthwhile supplementary tool. Its stimulating material can be used in a variety of ways to develop many facets of language.

Basically, a unit approach was used in planning daily activities since it provided for an organized progression of related ideas. One example of such a unit is included. It illustrates the many ways in which language development can be incorporated into the classroom procedures.

SUGGESTED ACTIVITIES

DECODING

(Understanding Stimuli)

Auditory

1. Read stories aloud. Ask questions to check understanding.
2. Play "Simon Says," "Captain, May I?" and games requiring following directions.
3. Have children listen to records and tapes for purposes of identification.
4. Ask children to complete nursery rhymes or finger play begun by teacher.
5. Deliberately give children wrong answer to check if they are listening and understand.
6. Begin a sentence and have children complete it.
7. Ask riddles which require pupils to decode.
8. Play game of "gossip." Whisper a word, phrase, or sentence to one child and have him pass it on. Last child repeats aloud.

DECODING
(cont.-)

Visual

1. Have children label or identify objects or pictures.
2. Have children find and cut pictures from magazines for specific purpose.
3. Ask pupils to identify the action in pictures or the activity being pantomimed.
4. Lead children to identify shapes, sizes, colors, etc., within their environment.
5. Let children find hidden figures within a picture.

MEMORY

Auditory

1. Have children memorize poems, finger plays, nursery rhymes, songs, etc. and recite them.
2. Require children to repeat a series of numbers or words. Can be done in reverse order.
3. Have children carry out a series of verbal commands.
4. Read short stories that require the children to recall specific details.
5. Ask children to retell a story that the teacher read or told. Flannel board figures may be utilized for visual assistance.
6. Play word addition games such as "I went to grandmother's house and took a ____________________.

Auditory (cont.)

Each child names a new thing plus repeating previously mentioned items.

7. Encourage children to recall previous days' activities.

8. Use Language Master, one headset, and sentence cards. Present each child with a sentence which he must retain until the entire group has heard their sentences. Make a comparison between child's version of the sentence and the original sentence. Group can judge.

Visual

1. Present a series of objects of pictures: remove them and have children recall.

2. Arrange a series of objects or pictures. Remove or mix-up and have children reproduce sequences.

3. Show picture or puzzle and remove. Show said picture with parts missing. Ask children to name all missing parts.

4. Have children observe one child. After child leaves the room, ask others to describe what he was wearing.

ASSOCIATION

1. Let children classify or categorize objects or pictures. For example, associate: person with clothing, room with furniture, store with item purchased, animal with habitat, clothes with season.

2. Play a speed-up game. Give children a limited amount of time to name all the things they can in a certain category. For example, "Name all the fruits you can think of."

3. Play elimination game. Select a category. A child failing to name an item within the given category is eliminated.

4. Set up problem situations and have children solve them. For example, "If you got lost, what would you do?"

5. Present a series of words or group of pictures, and ask children to eliminate the one that does not belong.

6. Ask questions involving absurdities such as "Would I find an elephant in the bathtub? Why or why not?"

7. Have children supply a word which is opposite to the one presented by the teacher.

8. Ask children how two or more things are alike or different. Initially accept concrete relationships, but gradually encourage more abstract responses.

9. Present a word, phrase or situation which might elicit a picture in the children's minds, such as "fire." Ask the questions, "What do you see? What do you smell? What do you feel? What do you hear?"

ENCODING
(Expressing Oneself)

Vocal

---

1. Display a picture and have children describe specific objects.
2. Build a story using flannel board sets, stand up pictures, or figures. Encourage children to use their imagination to create the story.
3. Have students describe objects or persons giving as many clues as possible: color, size, shape, function, etc.
4. Ask children to make up riddles to describe something.
5. Use Language Master and set of cards. (Verb: Action Words). Show picture on card so that the sentence is not visible. Ask one, or several, in group to create a sentence about the picture. Have group listen to card and compare children's sentence with one on card.
6. Let children create different ending for stories read to them.
7. Discuss field trips and home and classroom experiences.
8. Use See-quees and comic strips mounted on tag board to stress story sequence.
9. Create a situation and have children role play using telephone or puppets.
10. Have children keep a weekend diary. This can be a class project. (Keep a record of sentence growth - length and complexity).
11. Encourage children to learn and recite rhymes, songs, poems, and finger plays.
12. Have children dramatize stories and rhymes.
13. Stimulate general conversation.

ENCODING
(cont.-)

Motor

1. Encourage children to pantomime stories, nursery rhymes, poems and situations.

2. Ask children to reproduce rhythmic slapping patterns.

3. Let children perform accompanying actions to finger plays and songs.

4. Have children tape song and pantomime appropriate motions.

5. After discussions, permit children to draw a picture for reinforcement.

6. Show action pictures and have children supply appropriate motor responses.

7. Ask children to act out description of various words such as "large," "short," "tired."

8. Ask children, "How many ways can you cross the mat?" How many ways can you move the bell without using your hands?"

9. Use Frostig materials.

D. "The City" was the topic used in the unit as a basis for language development activities. The unit has these general language objectives:

1. To understand what one senses (hearing, seeing, smelling, testing, touching)

2. To distinguish differences and similarities

3. To sequence

4. To label

5. To classify

6. To express oneself

7. To develop divergent thinking skills

8. To associate

E. The materials used as accessories for this unit were well-known elementary school items, including books, filmstrips, flannelgraphs, records, pictures, puppets, dolls' houses, and the Language Master. The Peabody Language Development Kit, and the Holt, Rinehart and Winston Sounds and Patterns of Language were also used a good deal.

F. The introductory section of another unit, on the self concept, is quoted below:

> ### Objectives
>
> One of the main objectives of the language development program is to help a child express himself. In order to do this, it is necessary to help him develop his own concept of himself. He needs to know who he is and how he fits into his immediate environment. This environment includes his family, his peers, his teachers.
>
> ### PROCEDURES
>
> Introduction
>
> a) Have everyone say his name, including his last name.
> b) To the tune of "Where is Thunkin" sing "Where is Mary." The children sing, "Here I am."
> c) Teach each child to introduce himself.
> d) Hang name tags on the bulletin board and have the children choose their own name tag.
> e) Have the children draw pictures of themselves and print their own names. Do this at the beginning of the semester, for comparison.

f) Take a photograph of each child for bulletin board display and later send it home as a gift.
g) Tape record each child's voice.
h) Use magnetic cards from sounds and patterns for introducing and recognizing names.

MATERIALS

1. Tape recorder

2. Camera

3. Tagboard, paper, etc.

4. Sounds and Patterns of Language

Books:

William, Andy, and Ramon
Five Friends in School
Living as Neighbors
The Ugly Duckling
Just One Me
Your Face is a Picture
Exploration of Basic Movements in Physical Education
No Place for Jenny
The Witch Next Door
The Boy Who Wanted Duck Feet

Evaluation

A. Measures of Achievement

The evaluators of this program recognized that there are few tests available which are even remotely suitable for testing language improvement in disadvantaged children. Those which exist, such as the Wepman Auditory Discrimination Test, were developed with other purposes in mind than that of this program. The decision was made to use the Ammons Quick Test of verbal-perceptual intelligence, a short version of the Ammons Full Range Picture Vocabulary Test. The evaluators state that:

> A combination of two forms of the same test was used at each observation to increase the validity and reliability of the test results obtained. Forms 1 and 2

> were administered in September at the start of the project to randomly sampled pupils in one experimental and one non-experimental group and Forms 1 and 3 were given at the middle observation 4 months later in January to the same pupils, plus the second treatment and non-treatment groups. Forms 2 and 3 were used at the final observation 4 months later in May with the entire evaluation sample.

At the start of the program, the four groups were roughly matched on age and grade level, on IQ (based on the Pintner-Cunningham Intelligence Test which showed a mean of 84), and on socio-economic background. The evaluators do not indicate whether the first experimental and first control groups were matchable on the Ammons scores for September.

On the January Ammons testing, the first experimental group, which had received treatment, performed significantly better (at the 5 percent level) than did any of the other three groups which had not received treatment. A test practice effect was also observed for the first control group, which increased its mean significantly.

On the May Ammons testing, the first experimental group maintained its superiority over the other groups without having had further treatment beyond January. The second experimental group was not able to gain a mean score significantly better than the two control groups. The evaluators explain this result by saying that the first experimental group experienced gains of a cumulative nature, continuing to maintain the gain made during the treatment period. Presumably this means that pupils in the first experimental group were able to consolidate their ground during the second 4-month period, whereas those in the second experimental group had not been able to do so. The means for the groups in January and May are given in Table 44.

Besides the Ammons Quick Test, several other measures or ratings of oral language ability were used. First, classroom teachers' rankings of the program pupils on four critical factors were compared at the beginning and end of the 15-week treatment period. No significant differences were detected.

Therapists not connected with the program were asked to rate tape-recordings for randomly selected samples drawn from the experimental groups before and after treatment. The tape-recordings were each three minutes long, and were rated on seven characteristics. The ratings

Table 44

MEAN SCORES ON THE AMMONS QUICK TEST FOR FOUR SAMPLES
IN THE SPEECH AND LANGUAGE PROGRAM, JANUARY AND MAY 1967

Group	January	May
First experimental group	34.7	35.4
Second experimental group	30.4	33.7
First control group	32.6	32.7
Second control group	31.0	31.9

[Source: Tables 5 and 6, pp. 19 and 20, Milwaukee Public Schools (1967)]

showed highly significant improvement (at the 1 percent level) for both experimental sub-samples. No ratings were made of sub-samples drawn from the control groups.

Both the regular classroom teachers and the project therapists rated pupils in the experimental groups before and after treatment using seven characteristics related to participation and language. The classroom teachers did not think that the first experimental group had improved significantly in their classroom participation and language behavior, but the therapists' ratings on all seven characteristics showed significant improvement (at the 1 percent level) for the first experimental group in their therapy group participation and language behavior. For the second experimental group (which did not score so well as the first on the Ammons Quick Test), the teachers agreed with the therapists that there was significant improvement in four of the seven characteristics, but still did not agree on the remaining three. The evaluators speculate that these results were caused by the teachers becoming more sensitive in observing changes.

On individual ratings of pupils, the teachers and therapists showed a good degree of agreement.

B. Other Evaluation Indices

Apart from attendance records, which were kept by the project therapists, administrator and teacher reactions to the program as a whole were obtained. These were generally favorable.

C. Modifications and Suggestions

The program has been repeated, but with one important change. Instead of randomly selecting pupils to suit the experimental design used, the program personnel assigned pupils for treatment solely on the basis of need.

Budget

The program budget to serve 273 pupils amounted to $39,000, not counting donated time, overhead costs, or the costs of accommodation, which was available in the schools already. Equipment accounted for only $800, but items originally costing over $16,000 were used too, these being in stock from earlier projects. We might say that the cost per pupil to replicate this program would probably be not less than $200 per year.

Quoted Sources

Milwaukee Public Schools. Program for developing speech and language skills in the educationally deprived child through the utilization of the specialized training of speech therapists. Milwaukee: Milwaukee Public Schools, Division of Curriculum and Instruction, 1967.

Milwaukee Public Schools. Suggested activities and unit study in developing oral-verbal language skills. Milwaukee: Milwaukee Public Schools, Division of Curriculum and Instruction, 1967.

For More Information

Mrs. June Perry
5225 N. Vliet Street
Milwaukee, Wisconsin

COMMUNICATION SKILLS CENTER PROJECT
IN DETROIT, MICHIGAN

Introduction

Remedial reading services were provided to educationally disadvantaged children during 1966-67 at six Communication Skills Centers (CSC), three serving elementary and junior high school students, and three serving high school students. In addition, one special reading development center and 14 supplementary CSC classrooms were established. Students attended remedial reading classes on a weekly schedule during the regular school year, and intensive daily classes during the summer.

There were 2,845 children enrolled in grades 2 through 12, composed of 80-85 percent Negro, 10-15 percent Caucasian, and 1 percent or less Spanish-speaking. Pupils were selected to attend the CSC on the basis of referrals obtained ~~from~~ teacher or principals at project feeder schools.

Pupils enrolled in the CSC classes were given standardized reading achievement tests at the beginning and end of the treatment periods. The tests measured word meaning and paragraph meaning for grades 3 through 9 and reading comprehension for grades 10, 11, and 12. Means of gains in reading achievement made by CSC pupils were substantial for grades 7, 8, 10, 11, and 12. Other grades showed slight improvement in their reading scores over the treatment periods.

Personnel

A. Project Director/Consultant. (Part-time; administrator of programs for city public school district.)

Responsible for project design and administration and for preparation of classroom instructional techniques and materials.

B. Staff at each of six regular centers. Each is full-time except as noted.

1 junior administrative assistant
6 remedial reading teachers
1 reading diagnostician

1 psychologist (half-time)
1 social therapist
1 clerk-typist
1 lay aide

Methodology: General

Six regular Communication Skills Centers were operated during the 1966-67 school year. In addition to these centers, supplementary CSC classrooms were held in 14 schools, and a special reading development center was operated.

The six regular centers served 2,053 pupils from 60 public schools and 362 pupils from 26 non-public schools. Supplementary classrooms served another 430 pupils.

In each of three regions, an elementary center served elementary and some junior high school pupils, and a high school center served other junior, and all senior high school pupils. The three elementary centers were housed in specially outfitted transportable trailers on the school grounds of three elementary schools, one in each district. The high school center in one region was housed in classrooms at two high schools. In a second region, the high school center was operated in transportable trailers, and in the third region, in classrooms located in a high school.

Elementary and junior high school pupils were transported to and from the centers in buses specially provided by the project. Senior high pupils walked to the high school at which their center was located.

During the regular school year pupils served at the elementary centers attended two 60-minute classes per week. Pupils enrolled at the high school centers attended four 45-minute sessions per week. During the summer session most pupils attended one 60-minute class per day, 5 days per week.

Remedial reading therapy at the CSC centers began with diagnoses of the pupils' reading deficiencies. Following this, pupils were placed in small classes (six to ten pupils per class) for instruction. Using a variety of specialized remedial reading materials and equipment, CSC teachers strove to individualize instruction to meet each pupil's needs. Children whose reading disabilities appeared to be related to underlying problems of personal or social maladjustment were referred to the social therapist or to the psychologist for further diagnosis and counseling.

During the school year 1966-67, supplementary CSC classroom units began providing remedial reading services at 11 elementary schools and at three junior high schools. Each of these units was staffed by one teacher and served only pupils attending the school where it was located.

The CSC Reading Development Center became operational in February 1967. This center, housed in the Stevenson Building, consisted of a diagnostic reading clinic, a methods and materials development laboratory, and classroom facilities for small group (two or three pupils) instruction. The staff of the Reading Development Center included a full-time reading diagnostician and one full-time reading consultant. The psychologists and social therapists from the regular CSC centers assisted in the diagnostic clinic on a part-time basis. The function of the diagnostic reading clinic was to carry out thorough diagnoses of the reading disabilities of a limited number of pupils referred from selected schools, and to report findings and recommendations for treatment to the schools. The functions of the methods and materials laboratory were to develop and evaluate new materials and methods for use throughout the CSC program, to serve as a resource center for CSC personnel, and to plan and conduct inservice education workshops for CSC personnel. The small group instruction program provided opportunities for inservice training for new CSC teachers and for testing new materials and methods.

Counseling sessions were provided by the social therapist or the psychologist for those students whose reading disabilities were determined to be related to underlying problems of personal or social maladjustment. During the regular school year, approximately 300 CSC pupils attended one or more individual counseling sessions at the centers.

Methodology: Specific

A. Weekly Schedule for Workshop Participants

Weekly schedules were dittoed and passed to personnel at each center. This schedule was comprised of daily activities and assignments of personnel as participants in the program. A typical schedule is presented in Table 45.

Table 45

A TYPICAL WEEKLY SCHEDULE IN THE
COMMUNICATION SKILLS CENTER, DETROIT

Schedule for Workshop Participants

Day & Time	Activity	Parties Responsible
Second Week		
Monday		
8:30 - 9:00	Staff Consultation	
9:00 - 12:30	Classroom Participation	Consultant
12:30 - 1:30	Consultant Conference	Consultant
Tuesday		
8:30 - 9:00	Staff Consultation	
9:00 - 12:30	Classroom Participation	Consultant
12:30 - 1:30	Conference	Soc. Therapist
Wednesday		
8:30 - 9:00	Staff Consultation	
9:00 - 12:00	Classroom Participation	Consultant
12:00 - 1:30	Materials Demonstration	Consultant
Thursday		
8:30 - 9:00	Staff Consultation	
9:00 - 12:30	Classroom Participation	Consultant
12:30 - 1:30	Conference	Psychologist
Friday		
8:30 - 9:00	Staff Consultation	
9:00 - 12:30	Classroom Participation	Consultant
12:00 - 1:30	Conference	Diagnostician

B. Individual Instructional Diagnosis

Individual instructional diagnosis for each pupil was performed. A form was devised which provided for the collection of the pupil's biographical data, test scores administered, current instruction being given, recommendations by the social therapist, reading diagnostician, or psychologist if obtained, and recommendations for remediation of each pupil's reading achievement. Their recommendations were based on the diagnosis performed and recorded on this form, and provided the basis for each pupil's special remedial treatment in the CSC centers.

C. Student Report

A form entitled "Student Report" was designed to provide the CSC instructors an evaluation of the progress of each pupil at periodic intervals. The form included items to be checked where difficulties were diagnosed. These items were:

Word Recognition

1. Letter recognition
2. Basic sight words
3. Reversals
4. Phonic analysis
   - Single consonants
   - Consonant blends
   - Diagraphs
   - Long vowels
   - Short vowels
   - Vowel combinations
5. Structural analysis
   - Compound words
   - Root words
   - Prefixes - suffixes
   - Contractions
   - Syllabication
   - Accent
6. Context clues

Social-Psychological Adjustment

Attitudes toward: (good, fair, or poor)

1. Self
2. Learning to read
3. School
4. Home
5. Peers
6. Other - specify

Comprehension

1. Word-sentence meaning
2. Main idea
3. Details
4. Sequence
5. Inferences
6. Following directions
7. Reference skills

Communication Skills

1. Oral expressions
2. Written expressions
3. Listening skills

Physical Factors

Vision_____ Hearing_____ Speech_____
(X - if defective; C - under correction)

Referred to:
Psychologist
Social Therapist
Reading Diagnostician

After checking the areas of difficulty for each pupil, comments and statement of progress were made by the evaluator.

D. Student Referral

A student referral form was completed for each pupil to be considered for CSC treatment. This form was used as the initial basis for planning remedial instruction for each pupil. The form contained: biographical data; scholastic aptitude and achievement test scores health survey on vision and hearing; attendance record; disciplinary contacts, if any; referrals from speech therapists, psychological clinics, school social workers, or other agencies; and family data.

Evaluation

A. Measures of Achievement

The evaluators reported that (Rankin, 1968):

> The measurement of gains in reading achievement made by pupils attending CSC classes was based on the results

of pretests and posttests. All CSC pupils were pretested at the time of their enrollment at a project center. Posttests were administered at the end of the first semester and at the end of the second semester of the school year 1966-67. Third grade pupils were pretested and posttested on the California Reading Test, Upper Primary level; pupils in grades four to six, on the Stanford Reading Test, Intermediate I level; junior high school pupils, on the Stanford Reading Test, Intermediate II level; and senior high school pupils on the Stanford Reading Test, Intermediate II or Advanced levels.

The analysis of reading achievement gains presented below is based on test results for pupils who attended classes at the regular CSC centers during the regular school year, 1966-67.

For comparison purposes, norms of the former reading progress of the pupils in the program were established by taking the pretest score for each grade and assuming that the difference between this score and a value of 1.0 for the same pupils when they were starting first grade, divided by the number of years of schooling, gives the average rate of gain. Thus, a fourth-grade pupil starting the year and scoring 3.0 on pretest, was assumed to have gained 2.0 years of reading age in 3.0 years of schooling, an average gain of about 7 reading months per year.

In Table 46, average gains in months per year are shown for grades four through six, and for the junior and senior high school groups, before and during the program.

These results showed considerable benefits for the upper grades, although not tests of significance were quoted.

Table 46

AVERAGE GAINS FOR GRADES 4-6, 7-8, AND SENIOR HIGH SCHOOL, BEFORE AND DURING THE COMMUNICATION SKILLS CENTER PROGRAM, 1966-67

		Average Gains in Months per Year	
	N	Before	During
Grades 4-6	185		
Word Meaning		6	4
Paragraph Meaning		5	9
Grades 7-8	42		
Word Meaning		7	11
Paragraph Meaning		7	12
Senior High School	113		
Paragraph Meaning		5	15

[Based on tables in Rankin (1968)]

B. Other Evaluation Indices

1. An analysis of the relationship between reading achievement gains and scholastic aptitude levels was done in order to determine the effectiveness of CSC treatment for pupils at different aptitude levels. To facilitate this analysis, the 1,404 CSC pupils for whom data were available were stratified by scholastic aptitude according to their most recent scores on one of the standardized tests of scholastic aptitude administered to all Detroit school children on a regular basis. The distribution of these CSC pupils on a stanine places 43 pupils below average (stanine 1-3), 56 pupils at average (stanine 4-6), one pupil above average (stanine 7), and no pupils at higher stanines (8 and 9). This distribution of scores in the range of stanines 1 through 6 indicates that the CSC pupils are markedly below the norms.

The data collected during the CSC program were organized in categories of "Very Low" for pupils whose aptitude test scores fell in stanines 1 and 2, "Low" for pupils whose aptitude test scores fell in stanine 3, and "Normal" for pupils whose aptitude test scores fell in stanine 4, 5, or 6.

The evidence revealed that (Rankin, 1968):

> Among elementary school pupils enrolled in CSC classes for one semester, the pupils in the "Very Low" aptitude group showed greater rates of gain in reading achievement than did those in the "Low" and "Normal" aptitude groups. In the case of elementary pupils enrolled in CSC classes for two semesters, rates of gain in reading achievement were correlated with aptitude levels. The "Very Low" aptitude pupils made no gain in vocabulary achievement and less than expected gains in comprehension achievement. Both "Low" and "Normal" aptitude pupils showed lower rates of gain in vocabulary achievement than would be expected on the basis of their pretest scores, but greater rates of gain in comprehension than would be expected.
>
> Junior high pupils' rates of gain in reading achievement were roughly correlated with their aptitude levels. In vocabulary achievement the "Very Low" aptitude pupils showed only slightly greater rates of gain than would be expected on the basis of their pretest scores, while both "Low" and "Normal" aptitude pupils showed definitely greater rates of gain than would be expected. With respect to comprehension achievement, pupils at all three aptitude levels attained greater rates of gain than would be expected of normal-achieving pupils.
>
> Among senior high pupils, those in the "Normal" aptitude groups made considerably greater rates of gain in reading achievement than did those in either the "Very Low" or "Low" aptitude groups. However, pupils at all three aptitude levels showed greater rates of gain than would be expected of normal-achieving pupils.
>
> The findings appear to indicate that, in general, at all school levels, pupils of "Low" and "Very Low" scholastic aptitude make sufficient gains in reading achievement to justify their selection for CSC treatment. The available evidence does give reason to question the value of two semesters' continuous treatment for elementary school pupils having very low or low aptitudes. However, in view of the smallness of the number of these pupils, further investigation is needed before any firm conclusion can be drawn.

2. The change in pupils' attitudes, behaviors, and achievements in their regular school classrooms due to the CSC participation was determined by the administration of a questionnaire to the regular classroom teachers. The overall conclusion was that, in the opinions of their regular classroom teachers, the majority of 144 randomly selected CSC pupils showed noticeable signs of improvements in attitudes and behavior in their regular school classrooms.

C. Modifications and Suggestions

1. More attention should be placed on remedial instruction for those elementary pupils who are behind the averages of their own culturally disadvantaged group. Although this program treated pupils who were deficient in their reading skills, even among these pupils there were children who needed remedial reading instruction more intensive than that given the rest of the group. In future CSC programs, the increase in special remedial instruction over that given in the 1966-67 CSC program would bring up the lowest performers to a level such that the achievement of the entire disadvantaged group would average above that for normally achieving pupils.

2. In questionnaires to regular classroom teachers of CSC pupils, expression was repeatedly voiced that closer communication between CSC personnel and feeder school teachers should occur. The most important aspect of this communication would be the feedback to the classroom teachers concerning pupils' reading deficiencies and the integration of special kinds of remedial reading help into the regular school classroom activities.

Budget

1	Project Director/Consultant	Half-time
6	Junior Administrative Assistants	Full-time
36	Remedial Reading Teachers	Full-time
6	Reading Diagnosticians	Full-time
6	Psychologists	Half-time
6	Social Therapists	Full-time
6	Clerk-typist	Full-time
6	Lay aide	Full-time

Materials (Description and costs unavailable.)

Per pupil costs for the entire project in the 1966-67 school year covering 60 public schools and 26 non-public schools is estimated at $264 per pupil. This estimate is based on budget proposal costs and not on final actual costs which were not available at this time.

Quoted Sources

Rankin, P. T., Jr. Evaluation of the Communications Skills Center Project. Detroit: Detroit Public Schools, Research and Development Department, January 1968.

For More Information

Dr. Dominic Thomas
Detroit Public Schools
School Center Building
5057 Woodward
Detroit, Michigan 48202

JUNIOR HIGH SUMMER INSTITUTES IN NEW YORK CITY

Introduction

Students who had failed specific school subjects or who were retarded in reading took summer courses in the appropriate subjects. Instruction in a course was 90 minutes per day, 5 days per week, for 5 1/2 weeks. Small classes, educational aides, guidance counselors, and other special services were provided.

The students had just completed the sixth, seventh, or eighth grade, and were from intermediate and junior high schools, public and nonpublic. They were recommended to the institutes by their home schools on the basis of their need for remediation or repetition. All were drawn from poverty areas of New York City, such as Harlem and Bedford-Stuyvesant. Many were Negro or Puerto Rican.

Summer junior high schools staffed by regular school personnel have existed in New York City since 1960. In 1967, 11 of the 22 summer schools received federal support, including extra services such as teacher aides and guidance counselors (see Fox, 1967). These eleven schools were called Summer Institutes, and the description refers only to them.

Achievement in reading and mathematics classes was measured by the Metropolitan Achievement battery, in six of the schools (called the evaluation sample). The mean gains of the pupils were .3 year in reading and .5 year in mathematics, over a 5-week instructional period.

Personnel

A. Project Coordinator. (A licensed school principal during the regular school year.)

He administered the 11 project schools as well as the other 11 summer schools and the special Creative Arts Academy. He was responsible for setting up the schools, including registration procedures, and for coordinating the activities of the total program. He prepared a report which included recommendations for future programs (Fox, 1967).

B. Supervisors.

They administered and supervised the instructional program, including the educational aides.

C. Principals. (One per school; those in the evaluation sample were all licensed and experienced as principals. The summer school was not necessarily the same school as the home school of each.)

Each principal administered the program in one school with the full-time assistance of a licensed assistant principal.

D. Teachers. (In the sample schools, 83 percent were licensed in their teaching area and had classroom experience.)

E. Educational Aides (244 in 11 schools, or approximately one per teacher. Eligibility requirements stated that "only those recent high school graduates who reside in highly impacted poverty areas, and who are in financial need to continue their education are eligible...." Recommended by their high school counselors and others, many wished to go into teaching of social work. Forty percent of the aides were male, 60 percent, female. About 60 percent were Negro.)

They worked in a school near their residence and assisted the teachers with clerical work and by working with individual students.

F. Guidance Counselors. (11; licensed as counselors.)

G. Librarians. (11 in the six schools of the evaluation sample.)

H. Reading Consultants. (One in each of the six sample schools.)

Methodology: General

In all 11 institutes, students were given the opportunity to make up failure in credit subjects: English, mathematics, foreign languages, science, social studies. There were also non-credit classes in reading. In addition, some of the institutes offered credit classes in industrial arts, typing, and music and noncredit classes in English as a second language.

The school day consisted of three consecutive 90-minute periods. Teachers worked all three periods and pupils were each registered for one or two of these periods, i.e., they were each registered for one or two courses. There were about 20 students per class. The educational aides worked a 5 1/2 hour day at $2 per hour. The library was open during the school day to provide students a quiet place to study as well as a source of materials.

In the reading program, students were grouped without regard for age or nominal grade level. Those reading below grade level 3.5 were placed in the Basic Reading Program, which emphasized skills and mechanics of reading. The Intensive Reading Program was for students reading between grade levels 3.6 and 5.5. In both of these programs the curriculum was highly structured, with detailed directives spelled out for every part of the 90-minute period. Each teacher received a teaching manual from the reading coordinator.

A series of materials developed by the staff of the Junior High School Reading Project of New York City (see quoted sources) were used as the basis for these programs; in 1968 there was also a specially prepared Reading Handbook (Weiner, 1968).

In the mathematics classes, students were grouped by the grade level in which they had just failed math. The curriculum was considered as repetition rather than as remediation: the failed courses were retaught. In the summer program for the sixth grade, the first half of the regular year's course was taught including the fundamentals; in the seventh and eighth grades, the stress was on the second half-year, which contained more enrichment items.

The courses were structured according to handbooks prepared for the regular year's course in the Curriculum Bulletin series of the Board of Education of the City of New York (see quoted sources).

As compared to the reading classes, the observed math classes were generally rated as not linked to student experience, and as teacher-dominated, with fewer children volunteering discussion and with discipline maintained by teacher authority. (The evaluators do not speculate as to what degree these differences may be inherent in the subject matter, in the interaction between subject matter and slow learners, or in the heterogeneous grouping of the math classes, which 65 percent of the math teachers felt to be an unsatisfactory grouping arrangement.)

It may be noted that in the 5 1/2 weeks program there was time for about 4 weeks of intensive instruction in the evaluated classrooms, since 3 days were taken up with pretesting in week 1, and three with post-testing in the final week. The 4 weeks' instruction of 90-minute periods was considered equivalent to about 8 weeks or 2 months of instruction during the regular school year.

The budget for materials was limited, in favor of spending money for staff. Consequently, principals were advised to bring materials from their home schools.

A separate feature of the project was the establishment in one school of a summer Creative Arts Academy. This was for students from deprived areas who were achieving satisfactorily in school and who displayed potential in some field of the arts. The Academy was staffed by visiting artists and performers as well as regular school personnel.

Methodology: Specific Examples

A. Diagnosis

A careful diagnosis should be made of each child's reading problems. This may be done by means of:

An analysis of the results of the Metropolitan Reading Test

A Phonics Survey

An informal reading test

Although the Metropolitan Reading Test was not designed as a diagnostic test, by checking each pupil's errors against the item analysis the teacher can analyze the pupil's strengths and weaknesses.

Graph paper may be used to chart the errors made by a class. From this chart the teacher can select those skills which should be emphasized. Groups can also be formed according to the needs of the children.

The informal textbook test may be given to:

a) decide the pupil's instructional level
b) place new pupils
c) further diagnose reading problems such as word-attack skills and comprehension

B. Basic Reading Program

If the class consists of non-readers, teach a skill lesson (or experience chart) and a phonics lesson each session.

If the pupils are not complete non-readers and are reading on approximately a third grade level, modify the program by teaching the word meaning and comprehension skills listed below. Teach the phonics as needed. (Use phonics diagnostic chart.) Have another reading activity each session using other reading materials.

Lesson #	Skill
Phonics	
3, 9, 15	Initial consonants
21, 27, 33	Final consonants
45, 51, 57	Double consonant blends
63	Long vowels
69	Short vowels
103, 109	Triple consonant blends
127	Vowel diagraphs
133	Specific consonant combinations
139	Irregular consonant digraphs
145	Silent consonants
151	Inflectional endings
187	Irregular consonant combinations
193	Irregular vowel
199	Diphthongs
Comprehension and word meaning	
7	Main idea of a sentence
13	Understanding sentences - phrases- when, where
19	Understanding sentences - phrases - how, why
31	Understanding whole sentences
34	Multiple meanings of familiar words
46	Exact meaning of a word
49	Main idea of a paragraph - title
55	Main idea of a paragraph - first and last sentence
58, 64	Skimming
67	General significance of a paragraph
70, 76	Following directions
87	Word meaning - synonym and definition clues
91, 104	Predict outcomes

Lesson #	Skill
93	Word meaning - anticipation of meaning
110	Inferences
105, 111, 117	Main idea
121	Meaning of words - details
129, 135, 141	Understanding sentences with clauses
147	Cue words introducing details
153	Sequence of events
159	Details that illustrate main idea

The workbooks may be used as application material. Pupils, however, are not to write in the workbooks but are to use notebooks. Other application materials should be added.

C. Intensive Reading Program: Comprehension and Structural Analysis Skills

One comprehension or structural analysis skill should be taught each day for a period of about 30 minutes. Lesson plans for each skill may be found on the corresponding pages of the IRP Manual.

Applications - The IRP workbooks may be used if the pupils have not already used them. The pages correspond to the numbers of the lesson plans. Programmed Reading by Jerold Glassman may be also used as an IRP application. A set of 35 has been provided for each school. Be certain that the pupils understand the format before working in Programmed Reading. These skills may also be reinforced in other reading selections.

Comprehension

Unit #	Skill
1	Word meaning - contextual clues - synonyms
3	Word meaning - contextual clues - definitions
6	Word meaning - contextual clues - antonyms
10	Following simple directions
12	Following a longer list of directions
15	Word meaning - experience and summary clues
17	Main idea of a sentence
19	Main idea and details of a sentence - when, where
25	Main idea and details of a sentence - how, why
23	Context clues - multiple meanings
34	Main idea of a paragraph - title

Unit #	Comprehension
42	Main idea of a paragraph - first and last sentence
44	Main idea of a paragraph - at beginning and repeated at end
50	Main idea of a paragraph - in the body
52	Main idea of a paragraph - part of a sentence
57	Main idea of a paragraph - inferred meaning
61	Sequence of ideas
65	Figurative language
67	Skimming
74	Organization and classification
75	How to study

Structural Analysis

Unit #	Skill
32	Root words and endings
40	Compound words
48	Prefixes
56	Suffixes
58	Prefixes and suffixes

Phonics

Phonics should be taught as needed for approximately 10-15 minutes.

13	Hard and soft c
16	Long vowels
18	Long vowels - a, i
20	Long vowels - o, u
22	Long vowels - 2 vowels together
24	Short vowels - a
26	Short vowels - e
28	Short vowels - i, y
30	Short vowels - o, u
33	Consonant blends - ac, sk, sl, sm
35	Consonant blends - sn, ap, st, sw
37	Consonant blends - br, cr, dr
39	Consonant blends - fr, gr, pr, tr
43	Consonant blends - gl, pl, sl
45	Consonant blends - sc, sq, sp
47	Consonant blends - spl, str

Phonics

Unit #	
49	Digraphs - ch
51	Digraphs - sh, th
53	Digraphs - ph, wh
55	Digraphs - th

Directed Reading Activity

Each Directed Reading Activity may be used as an additional reinforcement for specific skills.

5	Green Cheese - synonym and definition clues
14	The Boy Who Would Not Give Up - antonym clues
21	Loaf of Bread - experience clue
31	The Best Man Won - multiple meanings
38	A Story Inside a Story - root words, endings s ed, ing
46	Daylight Saving Time - compound words
54	The Old Man's Treasure - prefixes
59	The Necklace - prefixes and suffixes
63	Snakes - main idea sentence
68	Tales of Robin Hood - figures of speech
72	Cask of Wine - predicting outcome
76	Flight of the Bell X-4 - use of context clues to find word meaning

Do not permit the pupils to write in the IRP workbooks. Their work should be done in notebooks.

Evaluation

A. Measures of Achievement

The evaluation by Fox and Weinberg (1967) was based upon those students in the six sample institutes for whom both pretest and posttest data were available from alternate forms of the Metropolitan Achievement Tests.

In reading, the mean gain for 479 pupils was .3 year, from 5.1 to 5.4, over an instructional period of 5 weeks. The expected gain during 5 weeks of the regular school year for disadvantaged pupils would be less than .1 year, but instruction would not be as intensive.

In mathematics, the mean gain for 339 pupils was .5 year, from 5.7 to 6.2, over the same instructional period with the same expected gain.

The distribution of these gains is reflected in Tables 47 and 48.

Table 47

PERCENTAGE DISTRIBUTION OF CHILDREN (N 479) BY GRADE LEVEL IN READING IN THE JUNIOR HIGH SUMMER INSTITUTES PROGRAM

Grade Level	Pretest %	Posttest %
10.0 +	1	2
9.0 - 9.9	4	3
8.0 - 8.9	5	8
7.0 - 7.9	8	12
6.0 - 6.9	15	13
5.0 - 5.9	20	25
4.0 - 4.9	25	20
3.0 - 3.9	22	17

[Adapted from data contained in Fox (1967)]

The figures given in Fox and Weinberg's report indicate that some of the changes may have been artifactual. In particular, "losses" recorded for the more able students in reading may well be the result of inaccurate measurement of this group by the Intermediate form of the Metropolitan Achievement Test. The fact that different reading programs were used at different levels may have influenced the pattern of scores too. Fox and Weinberg came to the conclusion that the gains made were indeed of both statistical and educational significance, although no level of confidence is actually stated.

Table 48

PERCENTAGE DISTRIBUTION OF CHILDREN (N 339) BY GRADE LEVEL IN MATHEMATICS IN THE JUNIOR HIGH SUMMER INSTITUTES PROGRAM

Grade Level	Pretest %	Posttest %
10.0 +	0	2
9.0 - 9.9	1	1
8.0 - 8.9	5	12
7.0 - 7.9	9	13
6.0 - 6.9	24	28
5.0 - 5.9	35	26
4.0 - 4.9	20	15
3.0 - 3.9	6	3

[Adapted from data contained in Fox (1967)]

Their evaluation is confirmed by the report of the coordinator (Fox, 1967) in which the figures for the whole Summer Junior High School program, of which the Institutes were a part, show median gains of about 9 months.

B. Other Evaluation Indices

The Fox and Weinberg team also assessed the quality of instruction, staff attitudes and opinions, children's attitudes and opinions, attendance, and the functioning and effectiveness of the educational aides.

They reported [pages 72 and 73] that:

> "The overall evaluation of the Summer Institute program was consistently positive.... The aspects of the teaching-learning process that were evaluated were rated as average

or better than average in quality; staff morale was good; and children's attitudes and responses were generally positive. Staff and observers agreed that children benefited from the program."

C. Modifications

Fox and Weinberg (1967) gathered opinions and suggestions extensively from staff and students, and distilled these into a set of recommendations for future implementation of the program. The recommendations seem to fall into two major categories:

One set of recommendations seems connected with the fact that the grant supporting the Institutes was not announced until June 1. Consequently, much planning was done at essentially the last minute. Recommendations for future include: better planning for full and effective use of library, guidance counselors, and educational aides; a clearer definition of roles generally; earlier ordering of materials; better orientation of teachers and other staff.

The other set of recommendations seems aimed at enriching the program beyond being essentially a replication of the regular school program. Recommendations include: a more flexible schedule rather than 90 minutes for each subject; greater individualization of instruction through diagnostic testing and an increased number of educational aides; distribution of paperbacks to help students start a personal library; more curriculum specialists to provide inservice and preservice training, assistance, and supervision for the teachers; additional innovative instructional materials, both software and hardware.

The program coordinator, Bernard Fox, in his annual report (Fox, 1967), supported many of these recommendations, and listed other innovations which he thought would improve the total program:

1. A "Talking Typewriter Reading Institute;"
2. A paid teacher-training program for teachers of reading;
3. The introduction on a pilot basis of the Initial Teaching Alphabet method of teaching reading;
4. The use of teaching machines in reading along with other materials not in common use during the regular school year;

5. The organization of a committee to develop a specific scope and sequence for the English Language Arts and another committee to do the same for English as a Second Language;

6. The introduction of a non-credit course in corrective mathematics;

7. The organization of a Mathematics-Science Academy for gifted pupils;

8. The teaching of foreign language as a non-credit exploratory course;

9. The use of a foreign language laboratory on a pilot basis in one school;

10. The expansion of the typewriting program to two teachers in those schools where a second typewriting room is available;

11. The initiation of a program for the circulation of library books as part of the summer instructional program.

Budget

A realistic budget is difficult to construct for this program, since the members of schools, teachers' aides, and pupils vary from year to year depending on demand. The total program, including the Institutes, cost $750,000 in 1967, to serve about 15,000 pupils. This is a per pupil cost of $50. No separate figure is available for the Institutes.

To staff a similar program, provision would have to be made for a coordinator, instructional supervisors, principals and teachers, educational aides, and support personnel such as counselors, librarians, reading consultants, and custodial staff.

Materials used in the program were drawn almost entirely from the regular day schools in 1967, so that over 95 percent of the budget was spent on salaries.

Quoted Sources

Board of Education of the City of New York. Curriculum Bulletin, Nos. 3a and 3b, 1966-67. (Mathematics, 7th Year, Parts 1 and 2.)

Fox, B. A. Report of the Summer Junior High School, Institutes, Academy. New York: Board of Education of the City of New York, September 1967.

Fox, D. J., and Weinberg, E. Summer schools for junior high and intermediate school pupils. New York: Center for Urban Education, November 1967.

Junior High School Reading Project. Basic reading program: A structured approach in the teaching of reading skills. Teachers' manual and books 1, 2, and 3. New York: Board of Education of the City of New York, 1966(?).

Junior High School Reading Project. Intensive reading program: A structured approach in the teaching of reading skills. Teachers' manual and books 1 and 2. New York: Board of Education of the City of New York, (1966?).

Weiner, A. Reading handbook: Summer junior high school. New York: Board of Education of the City of New York, 1968.

For More Information

Dr. Bernard Fox
Board of Education
110 Livingston Street
Brooklyn, New York 11201

PROJECT R-3
IN SAN JOSE, CALIFORNIA

Introduction

The R-3 program was designed to treat the learning problems experienced by eighth- and ninth-grade students from predominantly disadvantaged economic backgrounds with underdeveloped reading and mathematics skills. The three R's signified student Readiness, subject Relevance, and learning Reinforcement. The treatment was jointly designed by the San Jose Unified School District and the education division of the Lockheed Missiles and Space Company. It consisted of a special curriculum which interrelated math, reading, and technological skills; a series of field trips; and an inservice training program for the project staff.

The students were largely of Mexican-American background, English-speaking, and underachieving at least one, but not more than 2 years, in either reading or math as measured by the California Achievement Tests.

Project R-3 began in February 1967 with 37 eighth-grade students. Each subsequent year a new eighth-grade group was added in the fall, and the previous eighth-graders moved into the ninth-grade phase of the program. Therefore, each group participated in the program for 2 consecutive years.

An evaluation report of the 1967-68 eighth-grade pupils' progress showed that they made significant gains over those of comparable controls on standardized tests measuring competence in the areas of reading and mathematics.

Personnel

The following personnel were responsible for the eighth-grade R-3 program; a comparable staff directed the ninth-grade program.

A. Project Coordinator. (Full-time; certified in elementary and secondary education and administration; 12 years' experience as a teacher-counselor in target school; coordinator for Manpower Development Training Act.)

The coordinator made the initial contact with the parents and maintained contact throughout the program; participated in the curriculum planning and evaluation meetings, and the R-3 periods of instruction; performed other duties similar to those of a school principal; coordinated the efforts of Lockheed, School District, and Rand staff; directed intensive involvements.

B. Mathematics Teacher. (Full-time; certified in mathematics, guidance, and counseling; 6 years of experience as a production technician with an electronics firm; 5 years of teaching experience in a target school.)

He instructed two periods of R-3 math and co-directed the R-3 activity period each morning; participated in curriculum planning and evaluation meetings. He also participated in the intensive involvement field trips (described subsequently) as an instructor.

C. Reading Teacher. (Full-time; certified in general elementary and secondary education; 6 years' experience as a teacher and reading specialist in the target school.)

She taught two periods of R-3 reading and co-directed the R-3 activity each morning; participated in curriculum planning and evaluation, and in intensive involvement field trips.

D. Electronic Technician. (Full-time; trained in electronics and use of audio visual equipment; experience as U.S. Navy technician and electronic technician for Pacific Telephone and Telegraph, I.B.M. and Lockheed.)

He operated and repaired the electronic equipment used daily in the R-3 classrooms and frequently for evening presentations.

E. Secretary. (Full-time; experience as team-teaching secretary in a target area school.)

In addition to the full-time staff, the project had access to the part-time services of civic and industrial personnel who were involved in planning and evaluation sessions and intermittent instructional activities. Parents were frequently invited to participate in field trips.

The evaluation was conducted by an independent agency, Rand Corporation, of Santa Monica, California.

Methodology: General

The rationale for developing the R-3 program was based on the premise that traditional curricula and classroom activities have not been successful in helping students, such as those included in this study, bridge the gap between inherent capabilities and expected performance; therefore, the students quit trying and the typical behavioral symptoms of dropouts and delinquencies become apparent (San Jose Unified School District, Lockheed, Rand, 1968). The approach to this problem in the R-3 program was to identify the basic causes of underachievement in fundamental skill areas and then to use school, home, community, and technological resources to change the students' behaviors.

The title, R-3, suggests both the program objectives and methodology: students are ready to learn only when they are motivated; motivation is achieved when the performance of an act (learning to read) is positively linked with or made relevant to a reward and when the whole process is socially acceptable (has parental and peer group approval); major behavioral changes are made lasting by reinforcing the positive, desired acts which promote cognitive and affective development (San Jose Unified School District, Lockheed, Rand, 1968).

These are the major objectives of the program (San Jose Unified School District and Lockheed, 1967):

1. To develop student/family understanding of the technology-based society of the State of California.

2. To design a curriculum incorporating occupational skills analyses to make relevant the acquisition of reading and mathematics skills.

3. To motivate students with the desire to learn by instituting innovative techniques such as gaming/simulation, field trips, team learning, leadership instruction.

4. To upgrade performance in reading and mathematics.

5. To raise student occupational and educational aspiration level.

6. To improve overall classroom and school social behavior.

7. To enable students to relate positively individual cultural strengths to school activities.

8. To enable school staff to acquire understanding of the special characteristics of R-3 pupils.

9. To provide means for the students' parents and families to participate in the program.

The R-3 students attended a target junior high school; they spent each morning in three classes taught by project staff and the remainder of the day in the regular school curriculum (physical education, science, industrial arts or home-making, foreign language). The morning classes were devoted to reading and mathematics instruction, and the R-3 activity period. The students were grouped in classes of approximately 15 for mathematics and reading instruction and in groups of 30 for the activity period. Each math and reading class was taught by one staff member; the activity period was directed by two or more.

The mathematics and reading curricula were organized by the school district. They then submitted these curricula to the Lockheed personnel, who proceeded to incorporate the skills taught in these areas into the curriculum which they then designed for the R-3 activity period. The R-3 curriculum utilized a modular approach to relate closely program activities to program goals. This means that the annual program was composed of elements (units of study) which occupied given time segments and which imparted certain of the overall program objectives. The project staff felt that this approach offered the assurance that all objectives were covered, an increased facility for evaluation, ease of transfer of successful program elements, greater potential for general applicability through mixing of modules, and the ability to utilize scarce manpower in the production of program segments. The contents of each segment in the math and reading curricula were developed around a set of specific behavioral objectives for that segment. The content for each segment of the activity period curriculum was designed about a core subject of a given cluster of occupations (e.g., assembly occupations).

Each R-3 curriculum segment generally operated for the duration of 2 weeks (module). There were approximately 14 segments in the annual program. Two of these, known as intensive involvement periods, were each a week in length and were actually highly structured field trips to locations distant from the school community. The techniques employed to motivate and to involve the students actively in the learning situations comprising each segment included the following:

1. Gaming/Simulation
2. Intensive Involvement
3. Learning by Discovery
4. Team Learning
5. Concept-Motor Skills Linkage

6. Multi-Sensory Input
7. Learning to Learn
8. Role-Playing
9. Field Trips
10. Participation of Industrial and Civic Personnel

The project staff did not design the curriculum materials used in the reading and math segments of the program, but used current publications from among those which were suitable for this group of students in view of initial diagnoses based on California Achievement Test and SRA test scores. The staff did, however, sequence the learning events so that the students mastered certain skills necessary to the understanding of the corresponding occupational segment being taught during that activity period.

The materials used during the R-3 activity period were designed and printed by Lockheed expressly for use in this program.

A separate packet comprised of a series of lesson plans for one 2-week segment was prepared for the teachers. Each packet included the following:

1. A list of the general mathematics objectives of the program.

2. A list of the general reading objectives of the program.

3. A list of the specific behavioral objectives to be realized by the completion of the occupational module.

4. Lesson plans for the 2-week period.

5. Descriptions of games to be included in specific lessons.

6. Descriptions of relevant field trips to be taken in conjunction with the unit.

Printed matter and other materials used by the students were also developed or supplied by Lockheed.

Lockheed also prepared a technique which the project staff used to determine the success of each lesson. These forms permitted an evaluation of the extent to which each objective was met.

The R-3 classrooms were specially equipped for the operation of this project with carpeting, octagonal tables, closed circuit T. V., overhead, 16 mm and slide projectors, tape recorders, calculators, and fluorescent lighting.

Parents were encouraged to participate in the program. During the initial planning stages the families of the R-3 students attended a motivational night which included the following schedule of activities:

1. a dinner
2. a game with their children
3. a speaker - former student from the school district who is currently successful in business, industry, or a profession
4. a multi-media film presentation, "Se Puede - It Can Be Done"

Parents also served as chaperones on field trips and participated in meetings.

The project staff met during the afternoons to evaluate lessons and discuss plans for future packets. Video tapes of the lessons provided excellent feedback. The Lockheed personnel were frequently present at these sessions.

Methodology: Specific

A. Program Model

Table 49 is a partial reproduction of the total eighth-grade R-3 program for 1967-68 illustrating the parallel curriculum segments in reading, mathematics, and occupational technology.

B. Sample Packet: Assembly Occupations

The first three pages of the teacher's packet listed and described extensively the mathematics and reading objectives for the R-3 program. They were (Lockheed, XIV):

1. Improve oral vocabulary.

2. Improve reading rates and comprehension of materials.

Table 49

PARTIAL REPRODUCTION OF THE EIGHTH-GRADE R-3 PROGRAM CURRICULA (1967-68)

	Calendar Weeks						
	7	8	9	10	11	12	13
	Introduction to Technological Society		Intensive Involvement	Office Occupations	Electronic Data Processing		
R-3 Period	Library treasure hunt game "Historian" simulation "Job Hunters" simulation Lockheed employment interview Job-Education-Pay Game		Math Specialists Training Conference phone call Land Grant game Tour of historical sites	"Office workers" simulation Individual steel file boxes Field trip to school district office	Talk by Lockheed expert Boy vs. girl computing contest Programmed lecture (decimal to binary number conversions) Flow charting "I Am a Computer" game Two-state sentence builder Two-state coin mechanism Field trip to I.B.M. "Computer Dating" game "Alpha-numeric Search" game		
Reading Curriculum	Research Dewey Decimal System Industrial revolution films Vocabulary development Literature		Intensive involvement activities	Research and discovery Written reports	Literature "Revolt of the Machines	Literature film "Tom Was Just a Little Boy"	Creative writing and listening
Mathematics Curriculum	Measurement	Land grant preparation	Land grant preparation Intensive involvement activities	Graphs and charts	Exponents Roman numerals Number bases Place value	Decimals SRA kits 284-310	Place value Addition Subtraction Multiplication Division

[Source: Adapted from matrix prepared by San Jose Unified School District, Lockheed, Rand, (1968)]

3. Use written materials to obtain information.

4. Convert decimal numbers to numbers of other bases.

5. Read simple scales and measuring devices.

6. Solve math problems at grade level.

7. Solve problems of distance, angles, and rates.

8. Read simple graphs, maps, and tables.

The next page of the packet listed the specific objectives to be covered by the lessons in the 2-week occupational segment. They were as follows (Lockheed, XIV, 1967 [?]):

1. Follow oral instructions and demonstrate simple soldering techniques.

2. Follow written instructions included in electronic kits and complete the kit assembly.

3. Successfully assemble a flow chart of assembly operations by combining the component parts of the flow chart in a joint activity with other students.

4. Solve mathematical problems in long division and multiplication to compute parts cost for flashlight assembly.

5. Solve mathematical problems to complete cost reduction evaluation to improve assembly line operation.

6. Correctly maneuver game markers based on written instructions regarding assembly industry operations.

The succeeding pages describe each daily lesson in exhaustive detail listing materials to be used, vocabulary to be learned, and procedures to be followed in each activity. Samples of student work sheets are also included along with suggestions to the teacher for their proper implementation.

The other 13 packets used during the 1967-68 program with the eighth-graders were:

1. Office Occupations
2. Sales and Services
3. Agriculture and Food Processing
4. Transportation
5. Budget and Finance
6. Communications
7. Oceanology
8. Medical Occupations
9. Public Service
10. Electronic Data Processing
11. Santa Clara Valley
12. Introduction to Technological Society
13. Intensive Involvement, Land Grant

C. Gaming/Simulation

Gaming/Simulation is a highly structured representation of a real world situation which can be carried out in the environment of the classroom. Each packet in the occupational curriculum usually included at least one game in the lessons. The key elements of the experience to be simulated were analyzed by the Lockheed team and school staff and restructured into a classroom activity which retained those elements. The basis for using gaming/simulation is that it can generate anticipation and can specify reward. The Land Grant Game will serve as an example.

Land Grant Game

(San Jose Unified School District,
and Lockheed, 1966[?])

Objectives:

1. Relate positively the cultural inheritance of Spanish and Mexican California to this century.

2. Develop specific mathematics and reading skills.

3. Illustrate through student involvement with cognitive and psychomotor tasks the relevance of mathematics to civil engineering occupations.

4. Learn formal decision-making skills inductively.

5. Practice decision-making and social-participation skills by means of team activities.

The goal of student teams was to obtain a "grant" of land in the Big Sur State Park area where the game, or simulation, was staged. This took place during an "Intensive Involvement" week of the R-3 program. The game called for teams to survey the land, to describe the shape and location of single portions/plots and to file an official Grant Application for analysis and approval by the Governor and his Land Commission.

D. Intensive Involvement

Students were taken from the school setting for up to 5 days and nights. Parents, teachers, students, consultants, and industrial personnel took part in a carefully designed educational program which occupied much of each day. The chief objective of the intensive involvement was to break down the structured role in which the solitary teacher stands in front of a seated group of passive students. Table 50 illustrates some of the activities pursued during one 4-day intensive involvement period. The intensive involvements gave all the participants a new sense of time unbroken by class schedules. Often activities lasted from early morning until late at night. Lockheed prepared a packet of lessons and activities for each of these periods, just as they did for each 2-week occupational module of classroom work. There were usually two intensive involvement periods for each grade per year.

E. Parental Involvement

Parents were asked to join in the games, trips, intensive involvements, and meetings, and did so. At all functions, whether academic or social, everyone was treated in the same manner. There were no head tables, no introductions of special guests such as authority figures. On intensive involvements the students, parents, and teachers shared the same accommodations for eating, housing, and socializing.

Table 50

SOME OF THE ACTIVITIES OF AN INTENSIVE INVOLVEMENT PERIOD IN THE R-3 PROGRAM, MAY 1968

	Tuesday	Wednesday	Thursday	Friday
Morning	Load and depart. Study land formations en route.	Pt. Lobos Tide Pools. San Jose Beach. (Study and explore and handle marine organisms.) Return to Asilomar Shower -- Prepare for lunch.	Moss Landing - diggings outer coast, break water, bay/ estuary (study, discover and understand the environmental forces that operate at these habitats).	Load boat at Monterey. Boat tour of Monterey Bay. Study of currents, drift bottles, plankton netting. Study coast line features. Fishing.
Afternoon	Chanal Islands. Travel to Moss Landing Lighthouse. Sealions. Tour of State College Marine Lab. Arrive at Asilomar. Introduction to area and involvement.	Monterey Aquarium, wharf, divers, museum (identify and handle local sea-life organisms).	Return to Asilomar. Mounting specimens dug during morning; mole crab, sea urchin, star fish, shrimp.	
Evening	Ship's Navigator Game. Write post-cards home.	Marine Biology Game. Write post-cards home.	Complete mounting of specimens. Sailboat Race Game.	

[Source: Adapted from last page, San Jose Unified School District, Lockheed and Rand (1968)]

Evaluation

The impact of the R-3 program on students, teachers, parents, and community was evaluated by the project staff and Lockheed personnel during planning and evaluation sessions each weekday afternoon. In addition, the Rand Corporation evaluated each aspect of the program in a lengthy report at the conclusion of each program year. These evaluations were based on both objective and subjective data gathered during the year on various types of standardized tests and rating forms.

A. Measures of Achievement

Rand Corporation suggested that the testing be done under standardized conditions, preferably under the supervision of a counselor from the School District's administration office. This was done. The California Achievement Test was chosen as the instrument for measuring changes in arithmetic and reading competence. A pre- and posttest design was employed to compute the results. For the sake of simplicity the data which are presented here represent the 1967-68 eighth-grade R-3 students who had been in the program for 1 entire year. The results from the previous year followed the same trends.

The method for choosing the R-3 sample and their control group should be explained. The California Achievement Test (CAT) was administered in the fall of 1967 to all eighth-grade students in two junior high schools. All students testing at least 1 year below grade level, but not more than 2 years below, in either reading or math were identified.

From this group 33 students at one school were randomly selected as the R-3 experimentals. Selection took place during the first week of school. Posttesting took place in June 1968.

In the control school all those students identified as meeting the selection criteria were then posttested in June of 1968. From among those who received both the pre- and posttest a random sample of 40 students was chosen as the control. The controls were uncontaminated by any treatment given to the program group and both the students and their teachers were blind to the fact that they were serving as controls for the R-3 project.

Tables 51 and 52 record the grade equivalents of the mean CAT pre- and posttest scores in reading and arithmetic for both experimentals and controls.

Table 51

AVERAGE READING GRADE EQUIVALENTS FOR EIGHTH-GRADE PUPILS IN THE R-3 PROGRAM, FALL 1967 AND SPRING 1968

	Boys		Girls	
	Experimental	Control	Experimental	Control
Pre	6.7	6.6	6.9	6.4
Post	8.4	7.9	8.9	7.5
Gain	1.7	1.3	2.0	1.1

N = 33 for the experimental group
N = 40 for the control group

[Source: Table 1, page 15, The Rand Corp. (1968)]

Table 52

AVERAGE ARITHMETIC GRADE EQUIVALENTS FOR EIGHTH-GRADE PUPILS IN THE R-3 PROGRAM, FALL 1967 AND SPRING 1968

	Boys		Girls	
	Experimental	Control	Experimental	Control
Pre	6.7	6.5	6.9	6.7
Post	7.9	7.0	8.3	7.5
Gain	1.2	0.5	1.4	0.8

N = 33 for the experimental group
N = 40 for the control group

[Source: Table 2, page 16, The Rand Corp. (1968)]

There was no statistically significant difference between experimental and control pretest scores. However, both boys and girls in the R-3 program improved significantly more (at or beyond the .05 level) in both reading and arithmetic than did the control group.

B. Other Evaluation Indices

Various other measures were used to evaluate the program such as: Teacher rating of students, attendance, discipline referrals, and parent ratings. Results from all such measures were highly favorable to the experimental program, as for example:

1. Local Title I programs adapted some of the instruction techniques.

2. Absence rate for the program group was uniformly lower - boys and girls, fall and spring - than for a comparison group.

3. Parent attendance at meetings averaged 85 percent (with little variation).

C. Modifications and Suggestions

During the 2 years that the program was in operation the staff made the following modifications:

1. More careful sequencing of the math curriculum to assure student capability in performing skills required in occupational segments of the activity period curriculum.

2. Statement of daily lesson objectives in behavioral terms.

3. Structuring intensive involvements so that they were replicable.

Suggestions which the project staff would make to persons interested in attempting a similar program are:

1. Use all components of the R-3 program as a unit; do not expect the same success if you attempt to employ only portions of it.

2. Do not allow the gaming/simulations to degenerate into something less than a real life simulation.

3. Instructions to teachers for implementing lessons should not read in a manner which restricts the teacher's role to information-giver.

4. Field trips should be integrated into the total curriculum in terms of preparatory and follow-up activities.

5. Vocabulary level of the units should be geared to the students' understanding; perhaps, fewer industrial terms could be used.

6. Specific daily objectives should be explicit in defining what a given student should be capable of doing, under certain conditions, and to what degree by the completion of the unit. The objective should be testable.

7. Students should be invited to judge the worth of each packet for themselves.

8. A school system should allow at least 3 months of preparation for such a comparable program.

Budget

It should be noted at this point that the R-3 Project was designed as a research and development program. For this reason the initial costs for such things as equipping classrooms, producing video tapes, designing and printing occupational packets, and employing the personnel involved in the planning and evaluation of the program exceed the costs of eventual replication. The project staff have estimated their eventual replication cost to be approximately $300 per pupil over and above the normal per pupil cost to the school. This estimate would apply if a school system were able to purchase the inservice films, instructional packets, and educational games on the open market. If a school district wished to have additional or alternative packets developed, the cost would be higher for the initial development period. If the school system itself preferred to design the packets with minimal technical assistance, the costs would be less. If, as a further alternative, a school district preferred to work jointly with a local industry, the capital costs again would be high in relation to the eventual costs of duplication. A more exact estimate of potential costs will be available from the school district at a future date.

Quoted Sources

Lockheed Missiles and Space Co. *Teachers guide for R-3 curriculum, assembly occupations (XIV)*. Sunnyvale, California: Lockheed, 1967 (?)

The Rand Corp. *Administrative report: Evaluation of Project R-3.* Santa Monica, California: Rand Corp. August 1968.

San Jose Unified School District and Lockheed Missiles and Space Co. *R-3 Program report*. Sacramento, California: California State Office of Compensatory Education, 1967.

San Jose Unified School District, Lockheed Missiles and Space Co, and Rand Corp. *Senate Bill 28 demonstration: Project R-3*. Sacramento, California: California State Office of Compensatory Education, July 2, 1968.

For More Information

Mrs. Ruth Holloway
Chief Program Bureau
Office of Compensatory Education
1108 O Street
Sacramento, California

Mr. Jack Anderson
Dept. 5670
Bldg. #102
Lockheed Missiles and Space Co.
Sunnyvale, California

Mr. William Doyle
Director of Compensatory Education
San Jose Unified School District
San Jose, California

Mr. Ralph Tftaff
Principal,Woodrow Wilson Jr. High School
701 Vine Street
San Jose, California

THE COLLEGE BOUND PROGRAM

OF NEW YORK CITY

Introduction

Ninth- and tenth-graders were selected for an intensive education program with the hope that they will remain in the program throughout high school and then pursue higher education. A consortium of local colleges and universities has agreed to admit successful program graduates and provide them financial aid.

The students were from poverty areas; approximately 50% were Negro and 30% Puerto Rican. They were selected on the bases of having good attendance and conduct, but being likely to enter a general (non-college preparatory) high school program. About one-half were between grade level and two years retarded in arithmetic and reading; about one-quarter were above this standard and one-quarter below.

The program began with the summer session of 1967, attended by 2000 students at 8 centers. In the following school year there were 3000 students in 24 high schools (200 in each of 6 schools, 100 in each of 18). It is anticipated that when the first wave of students are seniors, there will be 10,000 enrollees at one time in grades 9-12.

Over a 6-week period of the summer session, average gains of 3 months to a year were indicated on 4 tests of reading and arithmetic. The evaluation is confined to this session.

Personnel

A. Director. (Full-time. He was formerly principal of a school involved with a similar program.)

He was in charge of policy, budget, and general administration of the program.

B. Assistant Director. (Full-time. She was formerly a teacher, general counselor, and college counselor in inner-city schools.)

She had general administrative duties involving daily contact with the program personnel in the schools and day-to-day implementation of the program.

C. Coordinators. (One per school. Part-time: coordinators taught one or two classes in addition to their administrative duties for the program. These were classroom teachers, selected by the building principals.)

Each coordinator administered the program in one school during the school year. They met regularly with other coordinators to exchange ideas and experiences.

D. Teachers-in-Charge. (One per summer center; 4 1/2 hours per day for the summer session. These people had supervisory licenses and were usually department chairmen in the high school serving as a summer center.)

Each teacher-in-charge administered the program in one of the 8 summer centers.

E. Assistant Teachers-in-Charge. (One per summer center; 4 1/2 hours per day for the summer session. Often, these persons were coordinators or counselors in the school year program.)

F. Summer-Session Supervisors. (4 in number, 4 1/2 hours per day. They were chairmen of high school English (2) or mathematics (2) departments.)

These supervisors developed the curriculum and supervised teaching. (During the school year these functions were performed by the department chairmen of each school as a part of their normal duty.)

G. Teachers. (Summer: approximately 60 English and 60 math teachers at 4 1/2 hours per day. School year: each school was allocated funds for the equivalent of five extra full-time teachers per 100 program students. Larger number of teachers were actually involved, since each taught some program classes and some regular classes.)

They taught small classes of 20 students or fewer. English and mathematics teachers participated in the summer session. In the school year English, mathematics, science, social science, and foreign languages were taught.

H. Guidance Counselors. (One per 100 program students. Full-time: counselors had no non-program counselees. In addition to the academic-year counseling, the counselors worked in the 1967 summer session, but were deleted from the 1968 summer session.)

They counseled the same program students throughout high school, in cooperation with the family assistants. The counselors provided individual counseling as well as conducted weekly or bi-weekly small-group guidance sessions, and they provided information on college admission and worked with the cooperating college group to plan suitable college placement.

I. Summer-Session Librarians. (One at each of the 8 centers, approximately 4 1/2 hours per day.)

The librarians maintained normal library services and instructed students in techniques of library use.

J. Family Assistants. (One for every 50-70 students in the program. Four hours per day in summer, six hours per day in school year. Paraprofessional; community residents; their ethnic background was similar to students served.)

They acted as liaison between home and school and explained the program to parents. They assisted students and their families in obtaining necessary medical and social services.

K. Teaching Aides. (200 in summer of 1967, 140 in summer of 1968; 4 1/2 hours per day; college students.)

They assisted in the program classes, one or two aides per classroom. They took care of routine duties and provided individual tutoring.

L. Secretaries. (One in each summer center and in each participating school during the school year; two in central office of program. Full-time.)

The above personnel are those associated directly with the instructional program of the city school system. In addition, the consortium of colleges and universities maintains a small staff concerned with college admission and with financial aid for those admitted.

Methodology: General

The program stressed: 1) small classes averaging 15 to 18 students, 2) double sessions of English, 3) special group and individual counseling, 4) a cultural enrichment program of field trips. Students were told at the outset, and frequently reminded, that they were expected to work toward college admission. To make this a tangible and realistic goal, the cooperating colleges and universities (now numbering 100) have committed themselves to admission and financial aid for a specific number of program students - generally five per one thousand undergraduates admitted.

In the school year program, students carried seven or eight classes daily. Usually, six of these were program classes of small size: two English and one each of mathematics, science, social science, and foreign language. An additional one or two periods were given over to subjects such as art, music, or health, in larger classes together with non-program students.

An effort was made to capitalize on reduced class size, through tailoring assignments to the perceived abilities of the individual students, and through an informal class discussion approach in which the teacher was less of a central figure than is usual in larger classes. There was a similar effort to utilize the double English period by such techniques as having students write a paper, receive teacher comments, and rewrite the paper, all in the same day.

Pupils were grouped homogeneously in each subject, with maximum flexibility for individual students to change classes as their progress seemed too slow or fast for the classes in which they were placed. It is anticipated that some students will drop from or enter the program in the upper years, and that some students may elect the option of taking five years to complete the program satisfactorally. Students will be expected to obtain an academic diploma and pass the Regents' exam: the program is aimed at raising achievement, not at lowering standards.

Each school planned its own cultural enrichment program. Trips included museums, planetaria, libraries, the Shakespeare Festival in Connecticut, and the colonial village of Sturbridge, Massachusetts, among others. Concerts, ballet, theatre, quality films, and lectures on African and Hispanic culture were also on the agenda. Such events were preceded with briefings and discussions; many were scheduled for weekends and evenings to minimize interference with school work.

The program of the summer session was similar to that of the school year, except that classes were held for only 3 hours per day, and only in mathematics and English. Many students remained a fourth hour for counseling, individual assistance, or use of the library. The programs of cultural enrichment, counseling, and family assistance were pursued just as in the school year.

The summer school was meant principally for incoming ninth-graders, to ease their transition into high school. Their summer-school teachers were from the school in which they would enroll the following school year. It is anticipated that some older students will attend summer school also, as the program progresses. Attendance is voluntary; in the first summer about two-thirds of the program participants enrolled (many others had prior commitments to jobs or other plans). For those enrolled, daily attendance levels were over 80%.

The activities of the family assistant were supplemented by parents' days and "graduation" exercises held at the schools, with parents in attendance.

Representatives of the college consortium helped arrange for tutoring by college students, arranged campus tours and speakers, and began to evaluate student records in preparation for ultimate college placement.

Evaluation

A. Measures of Achievement

At the time of writing, results were available only for the initial summer session, 1967. Students were tested with alternate forms of the Stanford Achievement Test at the beginning and at the end of the summer session. Results for the four subtests administered are summarized in Table 53. It can be seen that group mean gains of from 3 months to a school year were achieved in the 6 weeks of instruction. The gain on each of the four subtests was determined to be highly significant (.001).

B. Other Evaluation Indices

Teachers gave high ratings of student behavior, both academic and non-academic, and of student and parent attitudes. The ratings of the family assistants, though generally positive, indicated a perceived need for greater understanding of family and neighborhood problems, by school personnel. The report of the program director noted the conscientiousness and healthy self-esteem of the participating students.

Table 53

GRADE-EQUIVALENT SCORES ON THE STANFORD ACHIEVEMENT TEST
1967 SUMMER SESSION
COLLEGE BOUND PROGRAM

Subtest	N	Pretest Mean	Posttest Mean	Gain
Paragraph Meaning	1352	7.7	8.0	.3
Arithmetic Computation	1364	7.4	8.4	1.0
Applications	1364	7.9	8.3	.4
Concepts	1364	7.6	8.3	.7

C. Modifications and Suggestions

Some project personnel feel, after one year's experience with the program, that: (1) students more than 2 years retarded should not be selected for the program, (2) teachers should be trained to capitalize on the smaller classes with appropriate instructional techniques.

Counselors participated in the 1967 summer program but not in the 1968 summer program. Originally, it was hoped that they would have an opportunity to become acquainted with their counselees and that this would ease the transition to high school during the following year. But for one reason or another, most counselors were not able to have the same group of 100 counselees during the next school year. This in part was the reason for deletion of counselors from the 1968 summer program.

Budget

1	Director	Full-time
1	Assistant Director	Full-time
1/school (total 24)	Coordinators	About 2/3 time in school year

1/summer center (total 8)	Teachers-in-Charge	4 1/2 hrs./day for summer session
1/summer center (total 8)	Assistant Teachers-in-Charge	4 1/2 hrs./day for summer session
4	Summer Session Supervisors	4 1/2 hrs./day for summer session
5/school	Teachers (school year)	Full-time equivalent
120-130	Teachers (summer)	4 1/2 hours/day
1/100 students	Guidance Counselors	Full-time in school year
1/summer center (total 8)	Librarians	4 1/2 hrs./day for summer session
1/50-70 students	Family Assistants	Summer: 4 hrs./day Schl Yr.: 6 hrs./day
200 in 1967 140 in 1968	Teaching Aides	4 1/2 hrs./day for summer session
1/center	Secretaries (summer)	Full-time
1/school	Secretaries (school year)	Full-time
2	Secretaries (central office)	Full-time

Non-Personnel Costs for School Year (e.g., materials, culteral activities, travel of family assistants)	$36/student
For Summer Session:	
Materials	$ 9/student
Cultural activities plus miscellaneous office supplies, carfare for students, travel of family assistants, etc.	$ 3/student

For the first full year of operation (including summer session) the program was budgeted for $3,250,00 beyond normal allocation. It is hoped that a budget of $8,000,000 for each class over 4 years will produce 2000 college-candidate graduates per year. This is the cost to the city school system; the work of the cooperating colleges is separately financed.

Quoted Sources

Horowitz, G. R., Lovinger, R., and Forlano, G. An evaluation of the College Bound Program, summer 1967. New York: Board of Education of the City of New York, 1967.

Other Sources Not Quoted

Edelstein, E. The work of the family assistants in the College Bound Program. Brooklyn, New York: Board of Education of the City of New York, College Bound Program, February, 1968.

Hillson, H. T. Report on the summer session of the College Bound Program: July-August 1967. Brooklyn, New York: Board of Education of the City of New York, College Bound Program. (Undated.)

Smith, E, and Schlakman, S. Teaching English in the College Bound Program (Parts I, II, and III). Brooklyn, New York: Board of Education of the City of New York, College Bound Program. (Undated.)

For More Information

Henry T. Hillson, Director, or
Miss Eleanor Edelstein, Assistant Director
College Bound Program
Board of Education
141 Livingston Street
Brooklyn, New York 11201